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T H E  
*City and Country Purchaser,*  
A N D  
**Builder's Dictionary:**  
O R, T H E  
**Compleat Builders Guide.**

S H E W I N G

The *Qualities, Quantities, Proportions,*  
and *Rates or Value* of All *Materials* relating  
to *Building*; with the *Best Method* of *Prepa-*  
*ring* many of them.

A L S O

The *Customs, and Methods* of *Measuring* of all *Artificers*  
*Work,* concern'd in *Building*; together with the *City*  
and *Country Prices*. not only of *Workmanship,* but of  
*Materials* also: The which will be extraordinary  
Useful in *Making* of *Bargains,* or *Contracts* betwixt  
the *Work-Master* and *Work Man*; and likewise in *Com-*  
*puting* the *Value* (or *Charge* of *Erecting*) of any *Fabrick,*  
Great or Small.

L I K E W I S E

The *Explanation* of the *Terms* of *ART* used by most  
*Workmen.*

T O G E T H E R W I T H

*Aphorisms,* or *Necessary Rules* in *Building,* as to *Situation,*  
*Contrivance, Compactness, Uniformity, Conveniency,*  
*Firmness, and Form, &c*

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By RICHARD NEVE, *Philomath.*

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The Second EDITION, with ADDITIONS.

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L O N D O N :

Printed for D. Browne, at *Temple-Bar*; J. and B. Sprint at  
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# ADVERTISEMENT

Concerning this NEW EDITION

OF THE

BUILDER'S DICTIONARY.

 ARCHITECTURE coming every Day, more and more, into Practice, the Booksellers were of Opinion, That a NEW EDITION of the BUILDER'S DICTIONARY would, at this Time, be not at all Unseasonable; especially, if by proper Additions It were made as fit for Gentlemen's Use, as the former Edititon was for Workmen: This, among other Improvements of it, I have endeavour'd to perform.

A 2

THE

THE *small Speculative Knowledge* of the Builder's ART, which I think I have gain'd by being concern'd in Translating the famous Alberti's Treatise of ARCHITECTURE, (which Sir Henry Wotton so highly praises, and which was never yet put into English, but will now soon see the Light) enabled me to distinguish, in the General, what was right from what was wrong in this DICTIONARY, tho' I don't pretend to be a Master of every individual Matter contain'd therein. And now I mention that Ornament of England, Sir Henry Wotton, I was surpriz'd and sorry to find that the Author of this DICTIONARY in almost all his Quotations (which are very numerous) out of that Great Man's Elements of Architecture, has made him write such bad English, and lay down such absurd Maxims of Building, as I am certain never appear'd in Print before. To give an instance of but One in above Twenty, in only Two Pages (the 10th and 11th.) of the former Edition of this DICTIONARY, in the Article of Arches. Sir Henry Wotton's words  
are



are these ; As *Semi-circular Arches*, being rais'd upon the total Diameter, are of all other the *roundest*, and consequently the *securest* ; so those are the *comeliest*, which keeping precisely the same Height (which, as every body knows, is just half its width) shall yet be distended one *fourteenth* Part longer than the said Diameter. Now this Author, or at least the Printer, makes him say the Distent (between the Feet of the Arch) shou'd be a Fourth, not a Fourteenth part, which if practis'd, I'm sure, wou'd make mad work, and bring, not an old, but a new House, upon one's Head. There wou'd be no end of enumerating the dangerous Errors that occur in this Book, by only putting one Word for another, nay but one Letter, as Carve instead of Curve, Right instead of Height ; not to insist upon such as are of a comical Nature, such as Plaisters for Pilasters ; Vesuvius for Vitruvius, &c. He that transcribes a Period from another, shou'd take care to do it, not only in the Author's own words, but in so many words, neither more nor less, neither adding words of his own, as this Dictionary-maker did in the

former Edition, *nor leaving out any Words of the Author, which he was likewise not seldom guilty of. Thus in the Article of Mosaic-work he makes Sir H. Wotton say, Mosaic-work consists of small inlaid Pieces of Stone, Glass, Shells, or other Materials, of various Colours; figured at Pleasure. Whereas Sir Henry says, Pebbles, Cockles and Shells of sundry Colours; and of late Days likewise Glass, &c. He leaves out of late Days, which Sir H. Wotton prudently inserted, because (as I take it) Glass was unknown to the Antients. It is not indeed non-Sense, as this Transcriber has worded it, but yet it is not the Author's Sense. But where is the Man that can make any Sense at all of what he puts into Sir Harry's Mouth, in the Article of Pedestal? The Height of the Pedestal in each Order ought to be a third part of the whole Column, comprehending the Base and Capital, and the upper Adjuncts, as Architrave, Frieze, and Cornice. Thus he points it, and there he ends it. Whereas Sir Harry's Words are these, The Height of the Pedestal in each Order ought to be a third part of the whole Column,*

Column, comprehending the *Base* and *Capital*; and the upper Adjuncts, as *Architrave*, *Frieze*, and *Cornice*, a fourth Part of the said Pillar. *These last Words*, a fourth part of the said Pillar, *this Transcriber leaves entirely out.*

*WHATEVER* Articles I myself have transcrib'd into this New Edition, out of other Authors upon this Subject, or their Translators, I have taken Care to do it verbatim, unless where they were manifestly mistaken, as in Sebastian le Clerc's Translator, building of *Equerries* (*Ecuries* in French) I have made it building of *Stables*; so in pag. 7. *Ionic*, I have made *Doric*, &c.

*THE* Translator of M. Perrault's five Orders of Architecture, says, *The Zoccolo or Socle (as we call it) is a square Body placed under the Bases of Pedestals; he should have said placed under the Mouldings of the Bases of Pedestals. Again, in the Word Metop, he is indeed in the right*



*in saying, It comes from the Greek, Metope, and is compounded of Meta and Ope; but then, he is in the Wrong to say, that Ope signifies Three. Meta, does indeed, signifie Between: But Ope in Greek, signifies the Mortise-holes of Rafters and Planks; and so Metope originally and strictly signifies the Space between those Mortise-holes; and in Architecture, it means the Space between the Triglyphs of the Doric Frieze. These, and several others of the like Nature, the Reader will find I have rectified in this New Edition.*

*AS for whole additional Articles of my own, I confess there are not many, though some there are: But then by adding frequently something to the Author, I may venture to affirm, I have help'd not a little to illustrate Matters: Thus in the Article of that most useful Timber-tree, the Ash, I thought it not amiss to quote a few Lines out of our incomparable*

*vable Poet old SPENCER, giving us such a succinct Account of the Nature of all or most Timber-trees, that 'tis worth every Builder's while to get them by heart, which he may, with the more Ease, do, as they are in Rhime.*

*'TIS hardly to be imagin'd how much only a Word or two now and then, properly inserted, helps the Reader to distinguish Things clearer than otherwise he could have done. Thus, for Instance, in the Word Baldachin. This Author says it is a French Word, and signifies a Canopy; so indeed it does; but what Canopy? Not every Canopy; nor indeed any Canopy but only that which is carry'd over the Holy Sacrament among the Roman Catholicks in Foreign Countries, when the Priest is going along the Street with the Host to some sick Person.*

*SO in Page 2. he speaks of a large Casement, which most Readers would take for the Casement of a Window;*

*dow ; whereas it is the same Word for another Thing, and in that Place signifies a hollow Moulding.*

*NO printed Book or Ballad ever contain'd such Multitudes of Typographical Errors as the former Edition of this DICTIONARY: Sometimes a Negative for an Affirmative, and so vice versâ, with a world of false Pointing, which makes the Sense utterly Unintelligible. All which I have taken no small Pains to rectify, besides mending the Language, and shewing the Derivation and Etymology of Numbers of Architectonical Terms, which this Author had not Literature enough to explain, though otherwise a very ingenious Person, and of good Mechanical Parts. Thus, for Instance, in the Word Architrave; he says, He supposes it to come from the French, for that the Word is purely so, adds he. Whereas, almost every Body knows it is not at all French, but part Greek, part Latin,*



Latin, and comes from the Greek Archos, Chief; and the Latin Trabs, a Beam; so he confounds Antick with Antique, and takes them to mean the same Thing. Antick he dwells much upon, and is Right in his Account of it. But Antique is quite a different thing, as I have made appear out of the ingenious Monsieur Richelet's Dictionary, &c.

*M A N T* Terms of Art he mispells, and thereby makes it difficult so much as to guess at the Etymology of them. Thus Soffita he calls Sapheta. Of this and many other Words, which he leaves un-deriv'd, I have taken Care to deduce the original Meaning by the Help of Books, and many times, where Authors are at a Loss, I have endeavour'd to help them out. Thus, for Example, A Scheam or Skeen-Arch, is a Word in every Body's Mouth, and none are ignorant it is a sort of a Flat-Arch; but no Body has yet discover'd whence this and other  
Words

*Words in this Book, fetch their Origin. With Submission to the Learned, I take Scheam-Arch to come from the Italian, Arco Scemo. Scemo, in that Language, signifying Imperfect, Incomplete; for such, indeed, is a Scheam-Arch, being less than a Semi-Circle.*

*For the rest, I refer to the Book it self.*



THE





# The *Prelude* or *Preface* TO THIS TREATISE.

Shewing the *Antiquity*, *Excellency*, *Emolument*, and *Necessity* of

## ARCHITECTURE.



AMONGST those many ARTS which *Divine Providence* hath been pleased to endow Mankind with the Knowledge of, this of ARCHITECTURE is none of the *least*, and therefore may well challenge a Place amongst the *Primary*, and most *Necessary*, if not the *Pre-eminency* of Rank.

FIRST, For its ANTIQUITY; it being almost Coætaneous with the World it self; for it was practis'd in the very Infancy of the World,  
by

by the firstborn of Mankind, *viz.* Cain, as you may find it Recorded, *Gen.* 4. 17. You may further observe, That this is the *Second ART* which the *Divine Pen-Man* hath left us upon Record: For we must allow *Agriculture* to be the most *Ancient*, and most *Necessary ART* of all others: It must certainly be the *Senior ART*; because we find in *Gen.* 2. 15. That *Almighty GOD* did place *Adam* in the Garden of *Eden* in the Time of his Innocency, and was there ordered to perform the Office of a *Georgic*, [or Husband-man] *Agriculture* must also as certainly be the most *Necessary*, because Men can, and do subsist (in a great Measure) without *Cloathing*, *Houses*, &c. in some Climates and Countries; but there is no part of the World where Men can live without *Food*

BUT, Nevertheless, where People are so barbarous as to be quite ignorant of *ARCHITECTURE*, or *BUILDING*, they are also for the most part wholly destitute of the *Knowledge of Agriculture*, or, *Tillage of the Earth*; for *Agriculture* without *Architecture*, would be but of small Use; because it would be but to little purpose for the Husbandman to *Plew* and *Sow*, and *Plant* Fruit-trees, and the like, if when Harvest comes, he hath neither *Barns*, nor *Granaries* to preserve his Corn in; nor *Conservatories*, or *Store houses* to lay up his Fruit in.

SECONDLY, As to the *Nobility*, or *Excellency* of this *ART*, it may be observed from the following *Circumstances*, That

THE *Holy Ghost* has been pleased to Honour this ART so far, as to grant it the *Privilege* to be Enroll'd (in the *Holy Scripture*) among the Actions of the first Monarchs of the World, viz. From *Adam* to *Noah*, there is no mention made of the *Military Actions* of the *Antediluvian* Sovereigns: All that is noted concerning them is, That they lived so many Years, and taught their Progeny, *To keep Sheep, To Till the Ground, To Plant Vineyards, To dwell in Tents, To Build Cities, To play on Organs and Harps, To Work in Brass and Iron, &c.*

THE *Divine Architect* of this World hath been pleased to Honour this *Excellent ART* so far, as to vouchsafe to give necessary *Precepts* and *Rules* concerning some *Buildings*, of which I will here give some *Instances*. And,

*First*, Of the *Diluvian Ark*, mentioned, *Gen.* 6. 14, 15. and 16 Verses. Where he was pleased first to give Directions for *chusing* the *Materials* for it. *Secondly*, He gives Order for the *Dimensions*. And, *Thirdly*, For its *Form*, both *External* and *Internal*.

THE *Second Instance* shall be of the *Sanctuary*, consisting of the *Ark of the Covenant*, the *Mercy Seat*, the *Tabernacle*, and the *Altar*, as you may find in *Exodus*, Chap. 25, 26, 27, and 30.

THE *Third Instance* that I shall produce is, Concerning the *Building* of *Solomon's Temple* at *Jerusalem*, as you may find it upon Record in *1 Chron.* 28. 29.

THOUGH



THOUGH some have been so bold as to assert, That the *Grounds* of all ARTS are to be found in the *Holy Scriptures*; yet I think none of the *Civil ARTS* can pretend to such *Documents* from *Scripture*, as the *Art of Building* can: For we may observe from the *Preceeding Instances*, and some other *Texts* of *Scripture*, (which I shall by and by refer you to) that the *Omniscient Architect* of the World did direct Men to Build by Design, viz. By a *Prototype*, *Model*, *Draught*, or *Pattern*: As you may find in *Exodus* 25. 40. *Num.* 8. 4. 1 *Chron.* 28. 11, 12, 18, 19. *Acts* 7. 44. *Heb.* 8. 5.

IT is also observable, That the *Divine Architect* did not only direct the Form by a *Pattern*, or *Draught*, but also by giving the *Dimensions* of each *Particular*, as you may observe from *Gen.* 6. 15 and 16, and *Exod.* 25. 10. also in the 26, 27, and 30th Chapters of *Exodus*, 2 *Chron.* 3. 3. &c. He also gave *Directions* for *chusing Materials* for each *Particular Use*, as you may find in the afore-cited sixth Chapter of *Gen.* and *Exod.* 25. 26, 27, and 30 Chapters; not only so, but was pleased to direct to the *Quantity* by *Weight*, as you may see in the afore-mentioned Chapters of *Exodus*, and in the 28th of the First Book of *Chronicles*, &c.

AND let me further add, Tho' *Architecture* be contemned, and slighted by some, because it depends upon *Mechanicks*, or *Handicrafts-men's* Practice; yet it ought not to be despised, as they would fain make the World believe it is;

For

For I must, and will, tell such Men the Plain Truth, That they must certainly be Infidels, and do not deserve the Title of a *Jew*, and much less a *Christian*: For if such Persons were *Jews*, I think they must needs be very Ignorant of the *Pentateuch*, or Writings of *Moses*, or else they would have been convinced of this their Error from *Exod.* 31. ver. 3 and 6. where the *Holy Ghost* stiles the *Mechanick* Knowledge of *Bezaleel*, and *Aholiab*, &c. the *Spirit of God*, *Wisdom*, &c. And if they were *Christians*, they were very mean Ones to be ignorant of the *Books* of *Moses*, and the *Gospels* of *St. Matthew*, *Mark*, and *Luke*; for we may learn out of *St. Matthew*, chap. 13. ver. 55. and *Mark*, chap. 6. ver. 3. and *Luke*, chap. 2. ver. 51. that our *Blessed* REDEEMER did not think the *Knowledge* and *Practice* of *Architecture* and *Mechanicks* of *Handicrafts*, so Abject as some would represent it to be; for from these *Texts* we may learn, That He was pleased to exercise this *ART* of *Architecture*, and to be a *Mechanick*, viz. A *Carpenter*, for some part of the *Time*, that He was here Conversant with *Morals*; which I must tell you, is no *small* Honour to the *Mechanicks* and *Architecture*.

I Profess, I can discern no more Reason, Why the *Sordidness* of some one *Workman* or *Mechanick*, should be the Cause of Reproach to *Handicraft Arts*, than that most Excellent Invention of Raising Water at *London-bridge* (for the Service of many Families in the City,) should be *disesteemed* and *neglected*, because

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there may sometimes happen to be a blind, (or otherwise *defective*) Horse employ'd in the Operation.

AND tho' *Mechanick Employments* be by some reckon'd so very *Ignoble* and *Scandalous*, yet it is very well known that many Gentlemen of good Rank and Quality in this Nation, are often conversant in *Handicraft Employments*: And other Nations exceed us in the Number of such Gentlemen, of which I shall give you an Instance.

IN *France* the Making of Glass at the Glass Houses, is performed by Gentlemen of no mean Extraction, viz. Most of them of the great Glass house descending from Prince *Anthony Broffard*, Natural Son of *Charles* of *France*.

NONE but Gentlemen are employed in the Art of Making Glass in *France*, and these Gentlemen bear Honourable Coats of Arms, and both they, and their Servants, and Deputies are exempt from *Paying of Taxes, Quartering of Soldiers, &c.*

THIS Noble Art makes *Marble*, and other *Stones* become the Delights of Men, of which are made our Glorious Palaces, and the Ornaments of our most splendid Churches, and the most durable Monuments which the Ambition of Men could ever invent, whereby to render themselves and their Grandure known to future Ages.

THIS Art hath always been had in great Esteem; for it is become Familiar in the Courts of Kings and Princes, &c. The late King  
of



of *France* Established an Academy for promoting this Noble *Art*.

ANOTHER Thing which proves the *Excellency* of this *Art*, is, That it is always *Possessed* and *Practised* most, by the most *Civilized* and *Learned* Nations.

ALMOST every Nation (that are *Civiliz'd*, especially) have shewed Ample Testimonies of the Respect they had for this ART. For the *Jews* boast much of *Solomon's Temple*; the *Affyrians* of *Great Babylon*; the *Egyptians* of their *Pyramids*, &c. The *Ionians* of their *Ephesian, Diana's Temple*; and the other *Greeks* of the *Temples of their Gods*: *Rome* boasts of its *Temples, Amphitheaters, Triumphant Arches*, and *One thousand Stately Palaces*, &c. *France* glories in its *Louvre, Nôtre-Dame, Versailles Palace*, of *St. Germain's-en-lay, Fontainebleau*, &c. *Spain*, of its *Escureal*, &c. *Holland*, of its *Stately Churches, Stadt-houses*, &c. And *England* of its *Hampton-Court, Windsor-Castle, Westminster-Abby, Royal Exchange, St. Paul's Cathedral, Salisbury Church*. &c. It would be endless to give Instances of Things of this Kind; therefore I shall conclude with what I have already said, concerning the Excellency of this *Art*, and proceed to say somewhat,

Secondly, Of the *Emolument* and *Necessity* of this ART of BUILDING:

AS to the *Profit* of this ART, I think I need not to say much; for all know, (that know any thing) that *Merchants* and other *Traders*, cannot subsist without their *Ware-houses*, nor

*Tradesmen* without their *Shops*, nor the *Husbandman* without his *Barns*, *Granaries*, &c. For without these *Buildings* to preserve their Goods in, none of these different Ranks of Men would make much Profit of their Commodities.

BESIDES, there can be no Pretence to any kind of *Profit* without *Buildings* ; for there are no Nations in the World where the Air is so serene, as not to want *Buildings* to protect the Manufactures of it from the Injuries of corroding *Time* and *Air* : Add to this, That it is no small *Profit* that accrues to a State, or Nation, by those many Trades that depend purely upon *Building*, viz. *Carpenters*, *Joyners*, *Masons*, *Bricklayers*, *Sawyers*, *Glazers*, *Plumbers*, *Painters*, *Carvers*, *Smiths*, *Brick and Tile-makers*, *Stone-cutters*, &c. For as I have made it appear before, other Trades cannot subsist without these, viz. Because they cannot subsist without *Buildings* ; In like manner where there is [no *Architecture* in a Nation, there can, by Consequence, be no Princely Government ; for where the People are so Barbarous as to live in Caves, and in Hutts made of Boughs, &c. there are no *Mechanicks* amongst them, and by Consequence no *Improvement* of *Manufactures* ; and from thence it will follow, there will be little or no Revenues fit to maintain a Regal Power ; and for the most part, where such a Power is wanting, People are so *Savage* and *Barbarous*, that they live more like Brutes than Rational Men ; living by *Rapine*, *Murder*, &c. So that no Man can properly call any Thing his own, for they live (as it were) in daily Expectation of being



being robb'd, and deprived of that Little which they have, by those which are stronger than themselves. Which also implies a *Necessity* of *Building*, to which may be added that Complaint which *Aristotle* saith was made by some, *viz. That Man was worse dealt with by Nature than other Creatures, whereas they have some of them Hair, some Shells, some Wool, some Feathers, and some Scales to defend them from the Injuries of the Weather, Man alone is born Naked, and without any Covering*: But to this it may be answered, That *Divine Providence* hath endowed every Man with two such Superlative Instruments, *viz. The Hands*, (those admirable Instruments of Action) in Conjunction with that Faculty of the Soul, call'd *Reason*, which fully supply in Man whatever may or can be supposed to be wanting in human Creatures, as 'tis unwisely objected by some, That they are not sent into the World uncovered, and exposed to all Extreame of Weather, as *Heat, Cold, Drought, and Moisture, &c.* By this Instrument of Instruments, the *Hand*, which is adapted (by the *Divine Architect* of the World,) to supply the most necessary and useful Services of Man's Life, *viz. Building, Husbandry, Military Actions, Chirurgery, Writing, Engraving, Playing on Musical Instruments, and all the Necessary, as well as the Recreative Arts and Employments* of human Life. For indeed, if Man had wanted this Member, (as Learned Mr. Ray observeth) then we must have lived like Brutes, without *House* or *Shelter*, but what the Woods and Rocks afforded, with-

out *Cloaths* or *Covering*, without *Corn*, or *Wine*, or *Oil*, or any other *Drink* but *Water*; without *Warmth* and *Comfort*, or other *Uses* of *Fire*, as *Baked*, *Boiled*, and *Roasted Meats*; but we must have scrambled with the wild Beasts for *Acorns*, *Crabs* and *Nuts*, and such other Fruits as the Earth produces of her own Accord. We had then lain open, and been exposed to Injuries, unable to resist, or defend our selves against, almost, the feeblest Creature. Altho' Men were endowed with this incomparable Instrument the *Hand*; yet History informs us, That in the Infancy of the World, Men lived almost like wild Beasts, in Caves, and fed on Fruits and Roots of the Earth; but after they perceived the necessary Use of Fire against the Extremity of Cold, some began to edifie Cottages with Boughs, &c. and some digged Caves in the Mountains; and finding the Conveniency, and Necessity of it, at last with Practice they attain'd, by Degrees, to a greater Perfection in *Building*. So that now there are but few Nations but practice it in some Degree, having found the Usefulness, and Necessity of it, to protect them from the Injuries of the Weather, (and in some Countries from the Assaults of Rapacious Beasts.) Tho' in some Countries, (where the People are in Subjection to a Governour, and in a great Measure Civiliz'd) their *Buildings*, for want of ART, are very *imperfect* and *defective*, in Comparison of ours, in the learned Part of *Europe*, of which I will give an Instance or two.

AT *Puna*, an Island in the *West-Indies*, their Houses stand on Posts, Ten or Twelve Foot high, with Ladders on the out-side to ascend them. Also in the Isle of *Mindanao*, one of the *Philippine* Islands in the *East-Indies*, their Houses stand on Posts, fourteen, sixteen, eighteen or twenty Foot high; and they have but one Floor, but many Rooms in it; under the Houses there is a clear Passage like a Piazza, but a filthy one commonly; for some make this Place the Draught of their Houses, but, building by the Rivers mostly, the Floods cleanse those Places. At the *Nicobar* Islands, their Houses are built after the Manner of those at *Mindanao*, only the Roofs are Arched, but at *Mindanao* they are ridged; but in the *Nicobar* Isles, they have but one Room in a House. These Sorts of Buildings are all the Mode amongst the *Malayans* in the *East-Indies*.

I SHALL add one Instance more of the Necessity of BUILDING, and that from the Observation of the ignorant *Indians* in *New-England*, &c. Who, seeing that there is a Necessity of laying up some Corn for a Winter-Store, and for Seed for the next Season, make them Barns for that Purpose, tho' very poor ones, being only great Holes digged in the Ground, and ceiled with the Barks of Trees.

I CANNOT here but commend our compleat Method of Building now used in *England*, by much to be preferr'd before the ancient Practice here, or that is now used in many Nations. The *Principal Qualities* of this  
a 4 Modern



Modern Method, are these, *viz.* *Compactness, Uniformity and Conveniency.*

THIS ART, like most others, hath in this Age been much improved ; Men being now more *mathematically* inclined than formerly ; having likewise better Opportunity to attain it, from the many *Treatises* that have been made Publick of these ARTS from Time to Time, in this last Age, For as an ingenious Man well observes, *There is scarce any Part of the Mathematicks, but is some way subservient to Architecture, Geometry, and Arithmetick, for the due Measure of the several Parts of a Building, the Plans, Models, Computation of Materials, Time and Charges ; for ordering right its Arches and Vaults, that they may be both firm and beautiful : Mechanicks for its Strength and Firmness, transposing and raising Materials : And Opticks for Symmetry and Beauty.* He further adds, *I would not have any one assume the Character of an Architect, without a competent Skill in All of these.*

VITRUVIUS requires these, and many more to make a compleat *Architect*.

IN the ensuing TREATISE, I have endeavour'd to assist all such as have a *Desire*, (or have an *Occasion*) to understand the *Grounds and Rules of Architecture.*

I WAS first induced to undertake this Task of Composing a *Treatise* of this Nature, purely for my own Use ; for by daily Experience, I found, That such a *Tract* was very much wanting, and that if I did compose such a *Piece*, it might

might prove exceeding useful to others, as well as to my self; an Ingenious Bookseller being informed of my Design, was for my carrying it on.

I HAVE been in a great Measure excited to it, of late, out of Pity to some poor Workmen; for I have been informed of several, That for Want of *Skill* and *Forefight*, have undertaken Buildings by *Guess*, by which they have been almost ruined, or at least kept very low in the World; (tho' they have been very industrious in their Callings) and that purely by the Means of *unadvised Contracts*.

AND then again, on the other Hand, it hath been an Observation made by others as well as my self, That, some honest well-meaning Gentlemen, (and others) who have had Occasion to Build, &c. have been strangely over-reach'd by some Fraudulent, Crafty Workmen. But I hope this small *Treatise* may be a Means to promote distributive Justice (in such Things as relate to *Building*) and like a just Arbitrator whereby both Master and Workmen shall have what is *Justice* and *Equity* between 'em. For

THE ensuing *Treatise* contains not only the *Price* that most *Materials* are usually valued at, and sold for in different Parts of the Kingdom, and also the usual *Rates* of all sorts of *Workmen's Work*, both in the City, and in different Parts of the Country. But likewise,

2. IT contains Informations, as to the *Qualities*, *Quantities*, *Proportions*, and *Methods* of

of *preparing* and *making* many of the *Materials* relating to *Building*.

3. ALSO the *Customs*, and *Methods* of *Measuring* all Sorts of *Artificers Works*.

4. AN *Explanation* of the *Terms* of *Art* made use of amongst *Workmen*.

5. IN the following *TRACT*, is also comprehended, *Considerations* as to the *Choice* of a *Surveyour*, *Workmen*, *Model*, or *Draught*, &c.

6. *APHORISMS*, or necessary *Rules* in *Building*; as to *Situation*, *Contrivance*, *Receipt*, *Firmness*, or *Strength*, and *Form*, or *Figure*, and *Beauty*.

7. THE *Method* of *Surveying* of *Buildings*; as to *entering Dimensions* in *Pocket-books*, and *making Bills* of *Measurement*, &c.

8. OF *Valuing Buildings* when they are *Erected*.

9. A *METHOD* of *Censuring*, or passing one's *Judgment* on a *Building* (that is already compleated or finished) as to its *Commodiousness*, *Firmness*, and *Delightfulness*, which are the *Principal Qualities* in a good *Fabrick*.

IN the *Composing* of this *WORK*, (besides my own, and some *Friends Observations*; which, together,



together, consisted of several Sheets of Paper, which were never yet made publick) I have made use of the best Authors extant, to the Number of about Fifty, great and small ; which I hope may be allowed to be no small Task in *Reading, Comparing, Chusing, Correcting, Revising, Disposing, and Transcribing*, in Respect of *Matter, Form, and Order* For, to speak the Truth, I must tell you, I found I had no small Difficulties to wrestle with ; designing to collect the *Heads* of all such *Things* as were most Material, from so many *Authors*, and from my own *Notes*, which would have Composed a small *Treatise* of it self ; (for, I must tell you, they are not a few, nor have they been no small Time a *Collecting*, nor from none but *experienced Men*, and my every Days *Observations* almost, my *Business* being frequently amongst Workmen of divers Professions, and different Places ; so that the *Reader* will here have a great *Number* of *Observations*, which are wholly *New*. So that I was oftentimes more solicitous, and concerned, to consider *what*, than *what not* to write : Yet I have diligently endeavoured to insert the most *important Things*, that nothing *material* might be wanting to present you with a Satisfactory Account of the ART of BUILDING, in all its *Parts*, so as to make good our *Title*. Some, perhaps, may think it too *Small*, and the *Discourse* too *Brief* (for a Subject of this *Nature*) indeed, I think so too ;  
but

but then I must tell you, that it was my Design to be as *brief* as the Nature of the Subject would admit of; consulting, *Friendly* READER, your Advantage therein, by rendering the Book both more *Portable*, and less *Chargeable*; so that every one that desires to look into the *Precepts*, &c. of this ART, may here find *Satisfaction* without great *Expence*, either of *Time* or *Money*.

THE *Method* of this TREATISE is wholly *New*, but the whole ART is here ranged under certain *Heads*, and brought to a certain *Method*, and limited to *Practical Rules*, and that so *Perspicuous*, as to be understood by the *meanest Capacity*.

ONE Great Reason of my making Choice of this *Method*, of *Composing* it under *Alphabetical Heads* was this, *viz.* In a *Subject* of this Nature there would *unavoidably* have been a *Necessity* to have made Use of Abundance of *Terms* which are used by *Architects*, and *Workmen*, which would not have been understood by *Gentlemen*, and young (and ignorant) *Handicrafts-man*, (for whom this *Treatise* is chiefly design'd,) unless we had explain'd these *Terms* as they fell in, by Consequence in the *Discourse*; but if I had done so, I should too often have been necessitated to make large *Excursions* or *Digressions* from the *Matter* in Hand, which would have so *disjointed* the *Discourse*, that it would not have been so easily understood by young *Tyro's* in this ART, especially in a *Compendious Discourse*, as this was design'd to be;



be ; and put the Case, any one had wanted at any Time to know the *Meaning* of such *Terms*, when they had heard them used, it would have been no small Trouble to have found them in a continued Discourse.

ALL the *Treatises* that I ever yet saw on this *Subject*, (which are not a few) were either continued *Discourses*, or branched into *Chapters*, (or the like) containing the *Parts*, *Members*, and *Materials* relating to BUILDING ; or else comprised under the *Titles* of *Mechanick Trades*, as *Carpenters Work*, *Bricklayers*, &c. or else in a *Dialogue*, which I like worst of all ; because, in asking of Questions, commonly there is a *Necessity* of using more Words than any other Way of Writing : I dare maintain, That none of the aforesaid *Methods* are so fit for a *Subject* of this *Nature* that relates to so many *Orders* of Men ; *Parts* of Buildings, *Members* of *Parts*, and vast *Variety* of *Materials*, &c. as this which I have here chosen, (and I have heard some others wish for it, not only in this, but other *Arts* also.) For here, either *Gentleman*, or *Workman* may immediately find (by the Letters at the Top of each Page) any Thing that he hath occasion to be inform'd about, without the Trouble of reading over whole *Chapters*, or the like.

COURTEOUS READER, I will assure you, That you have here *Epitomized* the *Substance* or *Marrow*, of all, or most of the known Authors that have *Treated* of this ART ; besides a great many *New* and *Necessary* *Observations*,

tions, &c. which I hope will prove *Useful* to the *Publick*, tho' composed after a *new Method*, viz. an *Alphabetical Order* ; and upon that Account it may perhaps be objected against as a very *broken* and *imperfect* Subject. But I must here inform such, That many Times each particular *Word* (or *Head*) is a *Compleat Discourse*, by it self, and where it is not, you are refer'd to another Place, which will make it *compleat*, by only turning over a few Leaves.

HAVING thus *briefly* hinted at the *Reason* of *Composing it in this Method*, I shall now proceed to give some necessary Directions for the better Apprehension of the *Scope* and *Use* of the BOOK.

*First*, That it is intended for *Beginners*, and such as have not had occasion to study this ART, and not for *Accomplished ARCHITECTS*, and therefore *adapted* to the *meanest Capacities*.

*Secondly*, In several Places, the *Derivation* of the Word is hinted at, (which *assists* the *Memory*, and *informs* the *Understanding*) as well as the *Meaning* and *Sense* it is commonly used in ; and several other *Things* or *Circumstances*, according to the *Nature* of the Word ; of which I will here give some *Instances*. As suppose,

*First*, The Word *Arch*, there you have its *Derivation*, An *Explanation* of five different *Kinds*, The *Method* of *making* them, Five *Theorems*

*Theorems* concerning them, *The Method* of *Measuring* them, and *lastly*, *The Price*.

*Secondly*, The next Instance shall be of the Word *Bricks*, where you have an Account of *what* and *wherefore* made, and then a *Description* of eighteen Sorts, with their *Dimensions*, *Price*, *Weight*, and *Form*; also the *Method* and *Price* of *Making*, and *Burning*; also *Directions* for *Buying*, *Choosing*, and *Laying* of *Bricks*, &c.

*Thirdly*, Of the *Material*, call'd *Glass*, after a *General Definition* of it, you have an Account of thirteen Sorts, and the *Price* of most of them, &c.

*Fourthly*, Of *Lead*, where you have fourteen *Particulars*, too many to repeat here.

*Fifthly*, Of *Mortar*, you have thirteen *Heads*.

*Sixthly*, Of *Nails*, you have twenty five *Particulars*.

*Seventhly*, Of *Painting*, where are eighteen distinct *Heads*. All other *Trades* having their proper *Heads* also.

*Eighthly*, Of *Stair-Cases*, there is an Account of about twenty five Sorts.

*Ninthly*, Of *Tiles*, There are more than forty *Particulars*.

I SHALL



I SHALL forbear to *Enumerate* any more, but refer you to the *Book* it self, where you shall also find a *Description* of all the *Members* of the *Five Orders* of *Columns*, with their *Dimensions* and *Proportions*.

*Lastly*, I Do declare, That if any *Thing* which I have set down in the ensuing *Treatise*, be objected against as a *Mistake*, or that it is not so *Plain* and *Express* as it might have been, upon the least *Information* thereof, I shall be very ready to *revoke* it. And therefore, If in any *Thing* I have been beside the *Matter* in *Hand*, or made a false *Step* or *Blunder* ; I do earnestly intreat the Courteous, Good-Natured READER, either to *inform* me of it, (and upon *Eviction* I shall freely yield,) or else, That he would freely *remit* the Fault ; since all know

*Humanum est errare :*



T E H





T H E  
CITY and COUNTRY  
*Purchaser and Builder's*  
DICTIONARY.

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*Abacus.*



T is a square Table, Lift, or Plinth, in the upper part of the Chapiters of Columns, especially those of the *Corinthian* Order, which serves instead of a Drip or Corona to the Capital. It supports the nether Face of the Architrave, and whole Trabeation. In the *Corinthian* and *Compound* Orders, the Coronets of it are call'd the *Horns*; the intermediate Sweep and Curvature the *Arch*, which has commonly a *Rose* carv'd in the middle.

*Abacus* comes from the Greek Word *Abax*. and has several Meanings; sometimes a square Trencher, and sometimes a Buffet or Side Board, call'd *Credenza* by the Italians. But in *Architecture*, (as is said before) it signifies a quadrangular Piece, which serves as a *Crowning* to the *Capitals* of *Columns*; and in those of the *Corinthian* Order represents a kind of square Tile, covering a Basket, supposed to be encompass'd with Leaves.

The *Sieur Mauclerc*, in the *Ionick* Order, designs an O-G with a *Fillet* over it for an *Abacus*; and this *Fillet* is half the Latitude of the O-G, the

B which

which he calls the Fillet of the *Abacus*.

And in the Corinthian Order, he describes the *Abacus* to be one 7<sup>th</sup> Part of of the whole Capital, which he divides into three Parts, and the uppermost of these is a Boulton, and  $\frac{1}{3}$  of the next third below, is the Fillet of the *Abacus*, and the rest below being 1 and  $\frac{2}{3}$ , is the Plinth of the *Abacus*.

*Andrea Palladio* in the Tuscan Order, calls the Plinth above the Boulton, (or *Echinus*) *Abacus*; which from its Form, saith he, is commonly call'd Dado, or Dye, the which is  $\frac{1}{3}$  of the whole Heighth of the Capital.

In the Dorick Order, he also calls the Plinth above the Boulton of the Capital, the *Abacus*; above which he places a Cimatium, for the uppermost Member of the Capital.

In the Ionick Order, he defines it to be the same with the *Sieur Mauclerc*.

In the Corinthian and Composite Order, he described it to be the same almost with the *Sieur Mauclerc*, only his is a large Casement, or hollow Moulding, instead of the Plinth. But *Vincent Scamozzi* gives the Title of *Abacus* to a Casement or Hollow, which is the Capital of the Pedestal of the Tuscan Order. V. *Capital*.

### *Abreuvoirs.*

A Term in Masonry, by which is understood the Intervals, or Spaces between the Stones in laying them, commonly call'd the Joints, where-

in the Morter is placed: A French Word, and properly signifies a soaking with Water.

### *Acanthus.*

The Herb whose Leaves are represented in the Capital of the Corinthian Column. See at the End of the Word *Orders*, a short Account of the first Occasion of this most beautiful Ornament.

### *Acroteria.*

Are sharp and spiry Battlements, or Pinacles, that stand in Ranges, with Rails and Balusters upon flat Buildings. Also Images set on the Tops of Houses, are so call'd by some.

### *Acroteres.*

Are Pedestals upon the Corners and Middle of a Pediment to support Statues; they may properly be call'd Pinacles. The Word in Greek signifies the Extremity of any thing; the Tip of a Finger, a Rock, or the like.

### *Aditon V. Chauncel.*

### *Alabaster.*

1. *What.*] 'Tis a kind of soft, clear, white Marble; if it be so soft as to be cut, it is call'd Gypsum.

2. *Where found, or digg'd*] Some is brought to us out of the *Indies*, and from *Egypt*, *Syria*, &c. There is also some found in *Lincolnshire*, and in *Staffordshire*.

3. *It's Use.*] It's chiefly used for Monuments in Churches, &c, where there are any Figures in Relief, or in Bass-Relief, &c. carved. It's also sometimes used for a Coat of Arms when a Gentleman will have his Coat of Arms cut in Relief, to set in Brick or Stone-work in the Front of his House

### *Alcove.*

By the *Spaniards* call'd *Alcobar*; 'tis a Recess within a Chamber for the setting of a Bed out of the Way; where for State many Times the Bed is advanced upon 2 or 3 Affcents, with a Rail at the Feet. These *Alcoves* are frequent in many Noble-men's Houses in *Spain*, and other Parts beyond Sea. The Word is Arabick; *Elkauf*, a Place to sleep in.

### *Alder.*

1. *What.*] 'Tis an Aquatick Tree, so very common, that it needs no Description.

2. *It's Use*] Those which were large, were formerly made use of in building of Boats: So now are very large Alders sought after for such Buildings as lie continually under Water, where it will become as hard as a Stone; but being kept in an unconstant Temper, it decays in a little Time.

*Vitruvius* tells us, That the *Morasses* about *Ravenna* in *Italy* were pil'd with this Timber. to superstruct upon, and he

highly commends it. It was also used under that famous Bridge at *Venice*, the *Rialto*, which passes over the grand Canal, bearing a vast Weight.

3. *Poles*] of this Wood are extraordinary useful for *Pumps*, *Water-pipes*, (*Troughs* and *Sluices* also, if large.) These Poles I have known used (in the Country) for *Water-pipes*, to convey Water thro' Bays, and Dams, and also to carry Water from any Spring, to supply a House with this necessary Element; large Poles of this sort of Wood I have known used for *Ground-guts* to convey the Water out of Stews; the Poles were about 8 or 10 Inches Diameter, and the Cavity in them about 4n, or  $4\frac{1}{2}$ ; for boring, and fitting of which Size they have about 3 s. 6 d per Rod for Workmanship.

4. But for *Water-pipes*] the Poles need not be above 4 or 5 Inches Diameter; the Cavity is commonly about  $1\frac{1}{4}$ , or  $1\frac{1}{2}$  Inch Diameter.

5. *Of the Method of boring Alder-Poles.*] The Order in which they proceed, in this Operation, is this: Being furnish'd with Poles of a fit Size, not too small (nor too large, if for *Water-pipes*.) They procure Horses, or Trussels, of a fit Altitude, to lay the Poles, and rest the Auger on whilst they are boring; they also set up a Lath. to turn the least Ends of the Poles to adapt them to the Cavities of the greater Ends of the others; their



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Lath being up, and your Poles cut to the Lengths they will conveniently hold, *viz* 8, 10, or 12 Foot; they proceed to turn the small Ends of the Poles, about 5 or 6 Inches in Length, to the Size they intend to bore the greater Ends, about the same Depth, *viz* 5 or 6 Inches; (this you must Note is to make the Joint to shut each pair of Poles together, the Concave Part is the Female, and the other Part the Male part of the Joint.) In turning of the Male-part, they turn a Channel in it, or small Grove, at a certain Distance from the End and in the Female-part they bore a small Hole to fit over this Channel; for what Purpose you shall hear when they set the Poles together: They having thus far proceeded, they then bore thorough their Poles; and to prevent boring out at the Sides, they stick up great Nails at each end to guide them right through; but they commonly bore it at both Ends; and therefore if a Pole be crooked one way, they can bore him through, and not spoil him: The Poles being bored, they proceed to form them into Pipes in the Ground; for which Purpose they have a Trench digg'd, and prepared with Clay, to ram them in the Female part, being prepared with an Iron-Ring round it, to prevent its splitting; they drive in the Male part, till the Grove in it is just under the Hole, which is bored in the Upper-side of the Female-part;

and then having some melted Pitch ready, they pour it into the Hole in the Female-part, which flows round in the Grove which was turned in the Male-part; by which Means it is made very stanch and close: And thus they proceed till they have placed all the Poles in their Order.

6. *Of the Charge of these Pipes.* For Workmanship only, they usually ask about 2 s. 6 d. or 3 s. per Rod, *viz.* only to bore and fit them; but the Charge of all Work, and Materials, *viz.* Boring, Digging the Trench, Laying and Ramming in the Clay, &c. And the Charge of Poles, Clay, Pitch, and Iron Rings will be 4 s. 6 d. 5 s. 5 s. 6 d. or 6 s. per Rod; according as the Materials can be procur'd.

### *Amphitheater, or Amphitheatre.*

Is an Edifice, or Building of an Oval, or Circu'ar Form, with Rows of Seats, one above another, where Spectators might sit to behold Stage-plays, and other publick Spectacles; as Sword-playing, fighting of wild Beasts, &c. The *Amphitheatre* of *Vespasian*, call'd the *Coliseum*; that at *Verona* in *Italy*, and that at *Nismes* in *Languedoc*, are the most celebrated that we have now remaining of Antiquity: The Word comes from the Greek *Amphi* a-round, and *Theatron* Theatre.

*Anabathrum.*

A Place that is ascended to by Steps.

*Anchor.*

In Architecture, is a certain sort of Carving, somewhat resembling an Anchor, or Arrow-head; 'tis commonly part of the Enrichments of the Boulins of Capitals of the Tuscan, Dorick, and Ionick Orders; and also of the Boulins of Bed-mouldings, of the Dorick, Ionick, and Corinthian Cornishes. These Anchors, and Eggs being alternately carved throughout the whole Buildings.

*Ancones.*

The Consoles (a sort of Brackets and Shouldering Pieces) are call'd *Ancones* by *Vitruvius*. See *Console*.

*Annelet, or Annulet.*

The same as *Cincture* from the Lat. *Annulus*, a Ring; in Architecture, 'tis used to signify a narrow flat Moulding. (of which v. *Capital*) which is common to divers places of the Columns, as in the Bases; and Capitals, &c. 'Tis the same Member as the *Sieur Mauclerc*, from *Vitruvius*, calls a *Fillet*, and *Palladio*, a *Listella* or *Cincture*; and *Brown* from *Scamozzi*, a *Supercilium*, *List*, *Tinea*, *Eye-brow*, *Square*, and *Rabit*.

*Antæ.*

Pillars adjoining to the Wall. See *Parastatæ*.

*Antechamber.*

1. *VVhat.*] From the Lat. *Ante-camera* an Outer, or Fore-chamber; a Room in Noblemen's Houses, where Strangers stay till such Time as the Party to be spoke with, is at Leisure.

2. *Of it's Proportion in Length, &c.*] A well-proportion'd *Ante-Chamber*, ought to have in Length, the Diagonal Line of the Square of the Breadth, and not to excel the Breadth and  $\frac{1}{2}$  at most.

3. *Of their Height*] They are made either arched or flat; if they are flat,  $\frac{2}{3}$  Parts of the Breadth shall be the Height from the Floor to the Joists.

But if you will have it higher, divide the Breadth into 7 Parts, and take 5 for the Height. Or divide the Breadth into 4 Parts, and three of those shall be the Height.

In great Buildings, the *Antechamber*, *Hall*, and other Rooms of the first Story may be Arched, which will make them handsome, and less subject to Fire; and in such Buildings, the Height may be  $\frac{2}{3}$  of the Breadth, which will be the Height it ought to be from the Floor to the bottom of the Key of the Arch.

But if this Altitude be thought too dwarfish, the Height may be  $\frac{7}{8}$  of the Breadth.

Or



Or  $\frac{1}{2}$  of the Breadth, which will make it yet more stately.

4. Of *their Situation*] *Antechambers*, and others also ought to be so posited, that they may be on each side of the *Entry*, and of the *Hall*: And likewise it ought to be observed, that those on the Right-hand; may answer, and be equal, (or nearly so) to those on the Left: to the end that the Buildings may on all Sides bear equally the Burden of the Roof.

### Antick.

A Term in *Sculpture*, and *Painting*, being a confused Composition of Figures of different Natures, and Sexes, &c. As of Men, Beasts, Birds, Flowers, Fishes, &c. and also such like Fancies as are not in *Rerum Natura*. Of which I will give some Instances, and first of Humane Creatures, *viz.* How strangely deform'd. and confused some of the Heathens, represented their Gods, either in *Painting*, or *Sculpture*.

And 1. of *Saturn*; he is described by some with 3 Heads, *viz.* A Lion's, a Dog's, and a Wolf's; others pourtrayed him with two Wings on a Humane Head.

2. Of *Jupiter*; Him the *Lacedemonians* pictur'd with 4 Faces. The *Argives* had his Representation in *Sculpture* with 3 Eyes, *viz.* One in his Fore-head.

3. Of *Apollo*; Him the *Lacedemonians* depicted with 4 Hands, and as many Ears (The *Persians* describ'd *Phæbus* or *Apollo*) with the Head of a Lion.

The *Egyptians* had his Statue in the Likeness of a Man, with the Head of a young Ram, with small Horns on his Shoulders.

4. Of *Mercury*, the Ancients describ'd him like a young Man, with Wings behind his Shoulders and his Ears.

The *Egyptians* fram'd his Image with the Head of a Dog on his Shoulders

5. Of *Janus*; by some he was depicted with two Faces, by others with four. *Numa*, King of the *Romans*, caused his Statue to be hewed out with 365 Fingers.

The *Phenicians* form'd his Image like a Serpent, with her Tail in her Mouth.

6. Of *Neptune*; some represent him in his upper Part like a Man, and the lower like a Fish; in his Right-hand he holds a Trident, or three-pointed Spear.

7. Of *Pan*; the Ancients depicted him from the middle upwards, like a Man with a ruddy Complexion, being very Hairy (his Skin and Breast covered with the Skin of a spotted Doe, or Leopard; holding in one Hand a Shepherd's Hook, in the other a Whistle,) and from the middle downwards, the perfect Shape of a Goat.

8. Of *Fauns*, *Sylwans*, *Fairies*, and *Satyr*s, as to their corporal Shape, they were described like *Pan*, only they had short Horns on their Heads with small Ears and short Tails.

It would be a Task too tedious to enumerate all the Antick Forms, and Fancies by which

which the Heathens did represent their several Gods, and their Poets, and Painters, and Carvers did describe Them, and the Powers, Passions, Vertues, Vices, Nymphs, Muses, &c They not only had strange and monstrous Fictions of Humane Creatures; (in Poetry and Sculpture, and Painting also:) but of Brutes, As, 1. Of the Syrens, or Mermaids, half a Woman, and half a Fish; Griffins, half Beasts, and half Birds; *Pegasus* was also another of the same Fictitious Kind; Harpyes also which were part Women, and part Birds; Centaurs, half Men and half Horses; Sagittars, half Men, and half Beasts; Dragons, also part Serpent, and part Birds 2. They had also some Representations of twiform'd Creatures, as the *Amphisbœna*, a Serpent with a Head at each end; the Spread Eagle with two Heads on the same Neck. And likewise they sometimes have the Representation of divers sorts of Fruits, and Flowers, growing on the same Plant, &c With many such like Fictions which we have good Reason to believe, there are really no such standing Species of Animals, and Vegetables in Nature; tho' the Belief of such Existences hath been propagated by Orators, upon account of their fitness, to be made use of, in the way of Similitude

This Work which we call *Antick*, the *Italians* call *Grotesca*, and the *French* *Grotesque* ) which signifies Comical, Pleasant, apt to make one laugh; also ridiculous. And their word *Gro-*

*tesques*, signifies foolish, idle Fancies.

See *Antique* lower.

### *Anticum.*

From the Lat. a *Porch* before a Door, the Fore-door, a *Hatch*.

### *Antipagments.*

The Ornaments, or Garnishing in carved Work, set on the Architrave, (Jambs, Posts, or Puncheons of Doors;) whether of Wood, or Stone; a *Latin* *Antique* Word (*Antipagmenta*.)

### *Antique.*

This Word is used to signify a Building or Statue made at the Time when the Arts were in their greatest Purity and Perfection among the Ancient *Greeks* and *Romans* We likewise say, the *Antique* Manner, to signify any thing done according to the strict Rules, and the good Taste of the Ancients. The ingenious *Monsr. Richelet*, says, This Word *Antique* is used in general, to express such Works of Painting and Sculpture as were made between the time of *Alexander the Great*, and that of the Emperor *Phocas*, under whose Reign the Noble Arts were extinguish'd, about the Year 600.

### *Apertions, Or Apertures.*

1 What ] From the Lat signifying opening But in Architecture 'tis used to signify, Doors, Windows Stair Cases, Chimnies, or other Conducts: In short,

all *Inlets*, or *Outlets*, of *Men*, *Light*, *Smoak*, &c. To which belong two general Cautions, viz

1. Of their Number, and 2d. Their Position.

2. Of their Number and Dimensions.] Let them be as few in Number, and as moderate in Dimension, as may possibly consist with other due Respects; for in a word, all *Openings* are *Weaknings*.

3. Of their Position ] Be sure to let them not approach too near the Angles of the Walls; for it were indeed a most essential Solecism to weaken that Part which must strengthen all the rest.

### *Aqueduct.*

From the Lat. *Aqueductus*, a Conveyance made, for the carrying of Water from one place to another.

### *Arches.*

1. Whence derived ] It comes from the Latin, *Arcus*, a Bow.

2. What ] In Architecture, 'tis used to signify an inward Support to the Superstructure; and it is either *Circular*, *Eliptical*, or *Straight*. Of *Circular Arches*, there are three Kinds; *Semicircular*, *Scheme*, or *Skeen*, and *Arches of the 3d and 4th Point*. Of these, and of *Elliptical*, and *straight Arches*, I shall treat in their Order.

3. *Semicircular* ] These *Arches* are an exact *Semicircle*, and have their Centre in the middle of the Diameter, or right Line that may be drawn

betwixt the Feet of the Arch. Of this Form the *Arches* of *Bridges*, *Church-windows*, and great *Gates*, are sometimes made in our modern Buildings.

4. *Scheam*, or *Skeen*.] These consist of less than a *Semicircle*, and consequently are flatter *Arches*. Some of these contain an Arch of about 90 Degrees, others about 70, and others (which are yet flatter) about 60 Degrees; these last are very flat. Now, 'tis very easie to distinguish between *Semicircular*, and *Scheme Arches*; for the *Chord*, (or right Line) drawn between the Feet of a *Semicircular-arch*, is just double to its height, (measur'd from the middle of the *Chord*, to the Key piece, or top of the Arch;) whereas the *Chord* of a *Scheme-arch* of 96 Degrees will be above four times its height, and the *Chord* of a *Scheme-arch* of 60 Degrees, will be above six times its height. The term *Skeam-arch*, is derived from the Italian Word *Arco Scemo*. *Scemo* signifying imperfect, incomplete. For such indeed is a *Skeam-arch*; being less than a Semi circle. See more of *Arches*, at the latter end of this Article; being a Paragraph taken out of the Famous *Alberti's Architettura*, a Book that never yet appear'd in English, and out of which (because it is so highly prais'd by Sir Henry Wotton) I shall now and then make bold to borrow an Article, as I find 'em in a Manuscript Translation of Mr. Oxell's.

In all *Openings*, says he, over which we make *Arches*, we should



shou'd contrive to have the Arch never less than a half Circle, with an Addition of the seventh part of half its Diameter: The most experienced Workmen having found that Arch to be by much the best adapted for enduring in a manner to perpetuity; all other Arches being thought less strong for supporting the Weight, and more liable to ruin. It is more-over imagin'd, That the half Circle is the only Arch which has no Occasion either for Chain, or any other Fortification; and all others, if you don't either chain them, or place some Weight against them for a Counterpoise, are found by their own Weight to burst out and fall to Ruin. I will not omit here, what I have taken notice of among the Antients, a Contrivance certainly very Excellent and Praise-worthy: Their best Architects placed these Apertures, and the Arches of the Roofs of the Temples, in such a manner, that even tho' you took away every Column from under them, yet they wou'd still stand firm, and not fall down, the Arches on which the Roof was placed being drawn quite down to the Foundation with wonderful Art, known but to few: So that the Work upheld it self by being only set upon Arches; for those Arches having the solid Earth for their Chain, no wonder they stood firm without any other Support.

5. *Of the 3d and 4th Point.* )  
So our *English* Authors call 'em,  
but the *Tuscan* Authors call 'em

*diterzo, & di quarto acuto*, because they always concur in an acute Angle at the Top. They consist of two Arches of a Circle, (meeting in an Angle at the Top) drawn from the Division of the Chord, into three, or four, or more parts, at pleasure. The particular Method of drawing which, and all other Arches, and Mouldings, is not the Business of this Treatise. I have observ'd many of these Acute Arches in old Stone Buildings, both Houses and Churches. But I say, (says that great Architect, Sir Henry Wotton) that these kind of Arches, (both for the natural Imbecility of their acute Angle, as likewise for their Uncomeliness) ought to be exil'd from all judicious Eyes, and left to their first Inventors, the *Goths* and *Lombards*, amongst other Reliques of that barbarous Age.

6. *Elliptical* ] These kind of Arches consists of a Semi-Ellipsis, and were formerly much us'd instead of Mantle-trees in Chimneys. They are commonly describ'd on three Centers; but they may be drawn otherwise. These consist of three parts, *viz.* two Hanfes, and a Scheme. Now Workmen call each end of these *Arches* the *Hanse*, which *Hanfes* are always the *Arches* of smaller Circles than the Scheme, which is the middle part of these *Arches*, and consists of a part of a larger Circle; which is drawn betwixt the two *Hanfes* to conjoin them all together, to make, as it were one Helical Line,

Line, and by Consequence an *Elliptical Arch*. These Arches have commonly a *Key stone*, and *Chaptrrels*. (the *Key-stone*, is that which is the very summity, or top of the Arch, which is equally distant from both ends, and the breadth of this *Key-stone* at the top, ought to be equal to the height of the Arch, (which is commonly about fourteen Inches, when made of Brick) and *Sommer* (or point with its two edges) to the Centre of the Scheme; the *Key-stone* should break without the Arch, so much as the *Chaptrrels* project, over the *Jambes*. The *Chaptrils* I understand to be the same which most Architects call *Imposts*; and 'tis that on which the Feet of the Arches stand, whose height, or thickness ought to be equal to the breadth of the lower part of the *Key-stone*, N.B. That each other Course in these Arches consists of two *Stretchers*, which are seven Inches long apiece, (when the Arch is fourteen Inches deep) and the other Courses betwixt these of three *Headers*, and two *Closers*; the length of the *Headers* must be  $3\frac{1}{2}$  Inches and the *Closers*  $1\frac{3}{4}$  Inches; thus one Course of the Arch will be divided into two *Stretchers*. and the other alternately into three *Headers*, and two *Closers*, throughout the whole Arch.

7. *Strait*] These Arches have a straight, upper, and under edge, as the former had curved ones; and those two edges are parallel; and the ends, and the joints, all point toward one certain Centre: They are ge-

nerally used over Windows' and Doors, and 'tis a certain Rule amongst Workmen, That according to the breadth of the Peers betwixt the Windows, so ought the *Skew back*, or *Sommering* of the Arch to be; for if the Peers be of a good breadth, as three or four Bricks in length, then the straight Arch may be described from the *Oxi* (as it is vulgarly call'd) part of the Word *Oxigonium*, signifying an Equilateral Triangle; but if the Peers are small, as sometimes they are but the length of two Bricks, and sometimes but one Brick and a half, then the breadth of the Window, or more, may be the Perpendicular (to the middle of the under side of the Arch) at whose end below, shall be the Centre for the *Skew back*, or *Sommering* to point to. These *straight Arches* are commonly about  $1\frac{1}{2}$  Brick, which when rubb'd, makes about twelve Inches high, tho' sometimes they are but eleven Inches, or thereabouts, which answers to four Course of Bricks; but they may be made more or less in height, according as Occasion requires N.B. That by the word *Skew-back*, is meant the levelling end of the Arch, and by *Sommering*, is to be understood the level Joints betwixt the Courses of Bricks in the Arch. These Arches commonly consist of a *Stretcher*, and a *Header* in height, the *Stretchers* being a whole Brick's length, and the *Headers* a Brick's breadth.

Now the whole Business of building Arches, (saith Sir



H. W.) may be reduced into these five following *Theorems*.

8. *Theorem* 1<sup>st</sup>.] All solid Materials, free from Impediment, descend Perpendicularly downwards, because Ponderosity is a natural Inclination to the Center of the Earth, and Nature performeth her Motions by the shortest Lines.

9. *Theorem* the 2<sup>d</sup>.] Bricks moulded in their ordinary Rectangular Form; if they be laid one by another in a level row, between any Supporters sustaining their two ends then all the pieces between will necessarily sink even by their own natural Gravity; and must more if they suffer any Pressure by a superincumbent Weight; because their sides being parallel, they have room to descend Perpendicularly, without Impeachment, according to the former Theorem: Therefore to make them stand, either the Posture, or their Figure, or both, must be changed.

10. *Theorem* the 3<sup>d</sup>.] If Bricks moulded, or Stones squared, *Cuneatim*, (i. e. Wedge-wise, broader above, than they are below) shall be laid in a row-level, with their ends supported, as in the precedent Theorem, pointing all to one Centre; then none of the pieces between, can sink, 'till the Supporters give way; because they want room in their Figuration to descend Perpendicularly. But this is yet a weak piece of Structure, because the Supporters are subject to much Impulsion, especially if the Line be long; for which Reason this Form, (*viz. straight arches*)

is seldom used, but over Windows or narrow Doors. Therefore to fortifie the Work, as in this third Theorem, we have supposed the Figure of all the Materials different from those in the second. So likewise we must now change the Posture, as will appear in the following Theorem.

11. *Theorem* the 4<sup>th</sup>.] If the Materials figured Wedge-wise, (as in the preceeding Theorem) should be disposed in the Form of some Arch, or Portion of a Circle, pointing all to the same Center, in this case, neither the pieces of the said Arch, can sink downwards for want of room to descend, (as in the 1<sup>st</sup>. Theorem) Perpendicularly: Nor the Supporters, or Butments of this Arch, can suffer so much Violence, as in the precedent flat Posture, for the roundness will always make the incumbent Weight, rather to rest upon the Supporters, than to shove them; whence may be drawn an evident Corollary, that the safest of all Arches is the Semicircular, and of all Vaults the Hemisphere; tho' not absolutely exempted from some natural Weakness, (which is the sole Prerogative of Perpendicular Lines, and right Angles) as *Bernardino Baldi*, Abbot of *Guastalla* hath observed in his Commentary upon *Aristotle's Mechanics*; where let me note by the way, that when any thing is Mathematically demonstrated weak, it is much more Mechanically weak: Errors ever occurring more easily in the Management of gross Materials,



Materials, than in Lineal Designs.

12. *Theorem the 5th* ] As *Semicircular Arches*, or *Hemispherical Vaults*, being raised upon the total Diameter, be of all other the roundest, and consequently the securest by the precedent Theorem : So those are the comeliest, which keeping precisely the same heighth, shall yet be distended one 14th. part longer than the said Diameter, which Addition of Distent will confer much to their Beauty, and detract but little from their Strength.

13. *Of Measuring Arches* ] In measuring of them, whether they are Straight, or Circular ; they must be measured in the middle, *i. e.* If a straight Arch be twelve Inches in height, or depth, the length must be measured in the middle of the twelve Inches, which length will be no longer than if it were measured at the under side. next the head of the Window, by so much as one side of the springing of the Arch is skew'd back from the upright of the Jambs, Peers, or Coins of the Windows.

Also in *Circular Arches*, 'tis to be observed, that the upper part of the Arch is longer, (being girt about) than the under part, because it is the Segment of a greater Circle, cut off by the same right Line that the lesser is, and therefore it must be girt in the middle.

14. *Price.* ] For the Workmanship of *straight Arches*, well

(of Brick) in *London*, about 8 *d.* or 9 *d.* per Foot ; but in some parts of *Suffex* and *Kent*, they will not do it under 12 *d.* per Foot, running Measure. But in *London*, if the Workmen find Materials, then 'tis about 10 *d.* or 12 *d.* per Foot.

*Skeen*, or *Scheam Arches*, and *Elliptical* ones ; of *rub'd Brick*, are common about the same Price with *strait* ones. But *Scheam Arches* of *unrub'd Bricks* are commonly included with the plain Work, unless the plain Work be done at a reasonable Price : But you must here note, that the Master of the Building. (or Owner) is at the charge of the Centers to turn the Arches on ; and not the Workman, unless he be allow'd for it in the Price of the Work.

### *Architectonick.*

Belonging to the chief Overseer of Buildings, also to an

### *Architect.*

A Master-workman in a Building ; 'tis also sometimes taken for the *Surveyor* of a Building. *viz.* He that designs the Model, or draws the Plot, or Draught of the whole Fabrick ; whose Business it is to consider of the whole Manner, and Method of the Building, and also the Charge, and Expence : In the Management of which, he must have respect to its due Situation. Contrivance, Receipt, Strength, Beauty, Form, and Materials. All which are to be duly

ly deliberated of by the *Superintendent*, (or *Surveyor*) of a *Building*; it being wholly committed to his Circumspection, and therefore it will be his Prudence to manage the whole Affair advisedly, and with great Caution, that all may be so order'd, and disposed (in all Circumstances) that it may answer the Design, and be consentaneous to Reason. But tho' the whole Fabrick be the Care of the *Superintendent*, yet Sir H. Wotton, would have a second *Superintendent*, (or *Officiator*, as *Vitruvius* calls him) whose Care it should be to choose, (or examine) and sort all the *Materials* for every part of the Structure.

### *Architecture.*

A Mathematical Science, which teacheth the Art of Building being a Skill obtain'd by the Precepts of Geometry, by which it gives the Rules for designing, and raising all sorts of Structures, according to Geometry and Proportion. Containing under it all those Arts that conduce any thing to the Framing Houses, Temples, &c. The *Scheme* or *Projection* of a Building, is usually laid down in three several Draughts or Designs. The first is a Plan, which shews the Extent, Division, and Distribution of the Ground into Apartments, and other Conveniences. The second shews the Stories, their Heights, and the outward Appearances of the whole Building; and this we call the Design or Elevation. The

third, call'd the Section, shews the Inside: And from these three Designs, the Undertaker forms a Computation of the Expences of the Building, and the Time requir'd to go thro' with it. So much for what is call'd *Civil Architecture*. *Military Architecture*, usually call'd *Fortification*, has for its Object, the Security of Cities and States: but this part is foreign to my purpose.

### *Archives.*

A Place where ancient Records, Charters, and Evidences of a Nation are kept: Also the Records themselves. *Archivum* in Latin.

### *Architrave.*

1. *Whence derived*] The word comes from the Greek *Archos*, chief; and the Latin *Trabs* a Beam. 'Tis also sometimes call'd *Epistyle* from the Greek *Epi* upon, and *Stylos* a Column.

2. *What.*] 'Tis used in Architecture, to signify the Moulding, or Ornament next above the Capital of a Column: It being always the next gross Member below a Freeze. The word is also sometimes used to signify the chief, or principal Beam of a Building. Now I cannot conceive what they mean by the principal Beam in a Building, because I do not suppose it can properly be applied to all Buildings. but only to some peculiar Kinds, as what we call *Porticoes*, *Piaz-*

za's, or *Cloysters*, (by which we understand a long kind of *Galleries*, or Walking-places, whose Roof is born, or supported by Columns, or Pillars, at least at one side.) The which have not Arches rising from them to bear the superincumbent part of the Fabrick, but have a Beam resting, or lying on the Tops of the Columns, by which the superiour Part of the Edifice is supported; upon which Account I suppose it to be called the chief or principal Beam. In Truth, according as *Perrault* defines it, it is the first Member of the *Entablement*, being that which bears upon the Column, and is made sometimes of a single *Summer*, as appears in most of the ancient Buildings and sometimes of several *Haunses*, as we usually see it in the Works of the Moderns.

In Chimneys, the *Architrave* is the Mantle. Over the Jambs of Doors, and Lintels of Windows, 'tis called *Hypethyron*.

There are also *Architrave Doors*, and *Windows*; those are call'd *Architrave Doors*, which have an *Architrave* on the Jambs, or Puncheons, and over the Door, upon the Cap-piece, if straight; or on the Arch, if the Top be curved. The Form of these *Architraves* about Doors, are not always the same; for sometimes they are according to one of the 5 Orders of Architecture. But 'tis sometimes done according to the Workman's Fancy; for

I have seen some have put for an *Architrave* round a Door, 1st. next the Door a small Bead, then a broad Plinth, or *Fatio*, above that an O.-G. and List. There are Stone and Brick *Architraves*, as well as Timber-ones. *Architrave Windows* of Timber, are commonly an O.-G, rais'd out of the solid Timber, and a List above, but sometimes they are stuck, and laid on. Brick *Architraves* are usually cut in the Length of a Brick, but sometimes they are cut in the length of a Brick and  $\frac{1}{2}$ , then each other Course alternately consists of the Breadth of 2 Bricks; the upper One on which the O.-G is cut, and part of the upper *Fatio*, they call *Header*, or *Heading Architrave*, and the Breadth, or Head of Bricks on which the lower *Fatio*, and part of the upper one is cut, they call a *Jak Architrave* of Stone. v. Door, N. 4.

3. *Kinds*] *Architects* distinguish them into 5 *Kinds*, viz. Tuscan, Dorick, Ionick, Corinthian, and Composite, according to the five Orders of Columns.

4. *Parts, or Members*.] Are more numerous than the *Kinds*, because some of the Orders have two different sorts of *Architraves* and what yet more increases the Number, is, that some Authors differ from others in their Forms of the same Orders. Of all which I shall give a particular Account, in the following Order.



5 *Tuscan*] according to *Vitruvius* ought to be  $\frac{1}{2}$  a *Model* or *Module* in *Altitude*; this general Member, he hath described in two *Forms*; the 1st consisting of 3 *Parts*, or *Members*, viz. 2 *Fatio's* and a *Cimatium*, is thus divided: The whole *Height* is divided into Six *Parts*, which is subdivided in this *Manner*, viz. the upmost 6th *Part* is the *Cimatium*, which being subdivided into 3, the upper part shall be the *Fillet*, and the 2 lower ones the *O-G*. The 5 grand *Divisions* which remain, must be divided into 9, 5 of which shall be for the superior *Fatio*, and the other 4 for the inferiour one. His 2d. *Form* consists of but 3 *Members*, or *Parts*, viz. a large *Plinth*, or *Planchier*, a *Casement*, and a large *Fillet*, and is thus subdivided, the whole *Height* is divided into 6, the upper part is for the *Fillet* (which projects in square beyond the *Plinth*) the 5th part is for the *Casement*, (which rises from the Plain of the *Plinth* and terminates in a *Quadrant*, as the lower Corner of the *Fillet*.) The other 4 *Parts* remaining, are for the *Plinth*, or *Planchier*, or *Fatio*.

*Palladio* hath also 2 distinct *Shapes* for the *Tuscan Architrave*, the 1st, which we shall mention, consists of 2 *Fasio's*, (or *Fatio's*) and a *List*; the lower *Fatio* is  $12\frac{1}{2}$  m. high, the upper *Fatio* is  $17\frac{1}{2}$  m. which terminates with a *Quadrantal Casement*, rising from its Plain, and terminating with the lower Corner of the *List*; the *List*

is 5 m. high; so the whole height of the *Architrave* is 35 m. His 2d *Architrave* is only a plain *Fatio* of 35 m. high. *Scamozzi*, according to his *Delineations*, makes the *Tuscan Architrave*  $31\frac{1}{2}$  m. high, the which he divides into 4 *Parts*, or *Members*, viz. 2 *Fatio's*, a *List*, and a *Plinth*; his 1st. *Fatio* he makes 10 m. his 2d.  $16\frac{1}{2}$  m. his *List*  $1\frac{1}{2}$  m. and his *Plinth*  $3\frac{1}{2}$  m. all which make  $31\frac{1}{2}$  m. tho', according to this verbal Account of it, he saith it must be  $32\frac{1}{2}$  m. except it should be a *Typographical Erratum*.

*Vignola* describes it with the same *Parts*, *Height*, and *Form* with *Vitruvius's* 2d.

6. *Dorick*] This *Architrave*, according to *Vitruvius's*, is half a *Module* in *Altitude*, the which he delineates in two *Forms*; the 1st, (which I shall mention) he divides into 7 *Parts*, the uppermost of which is the *Tenia*, the other 6 remaining *Parts*. he makes a *Fascia* under the *Tenia*; he placeth *Drops*, whose *Height* are  $\frac{1}{7}$  of the *Architrave*;  $\frac{1}{4}$  of this  $\frac{1}{7}$  is the *Fillet*, to which the *Drops* hang; the *Drops* are 6 in Number, placed under, (and of the same Breadth with) the *Triglyphs*. His 2d *Figure* of his *Architrave*, consists of the same *Members* with the 1st, and the whole *Height* is equal to the 1st, but he divides the *Altitude* but into 6 *Parts*; the upper one of which is his *Tenia*, and the other 5 the *Fascia*, the uppermost of which is the *Altitude* of his *Drops*, which have a *List*, which is  $\frac{1}{4}$  of their *Height*, as before.

*Palladio*

*Palladio* composes this *Architrave* of the same Heighth, with *Vitruvius*, but of a different Fashion; for he makes it to consist of 3 Parts, or Members; viz. 2 *Fascia's*, and a *Tena*, or *Tenia*; he divides the whole Heighth into 6 Parts, one of which being 5 m. he assigns for the *Gutta*, *Bells*, or *Drops*; the *Listella* of the *Drops*, is  $\frac{1}{2}$  of the whole Height,  $1\frac{1}{2}$  m. and the *Drops*  $2\frac{2}{3}$  m. The *Tenia* above the *Drops*, (or of the *Architrave* rather) he makes  $4\frac{1}{2}$  m. and the *Prima* (or upper) *Fascia*, he makes  $14\frac{1}{2}$  m. and the *Secunda*, (or lower) *Fascia*, he allows 11 m. for, in all 30 m. which is the whole Heighth.

*Scamozzi*, (according to his Portraiture of this *Architrave*) makes it 35 m. in Altitude, and he makes this grand Member, to comprehend 3 pretty Members, viz. 2 *Fatio's*, and a *List*; whose Dimensions are as follows (beginning at the Top, and so descending) the *List* to be 5 m, the upper *Fatio*, 18 m. and the lower one 12 m. in all 35 m. The *Drops*, or *Bells*, he thus divides, the *List* above them he designs to be  $1\frac{1}{2}$  m. and the *Bells*, or *Drops* themselves  $4\frac{1}{2}$  m. so that your whole Heighth is 6 m.

*Vignola*, delineates this *Architrave*, 30 m. in Heighth, the same with *Vitruvius*, and *Palladio*; both which he also imitates in the lesser Member; for he hath 2 distinct Forms, one like *Vitruvius*, containing 2 Members, or Parts, one a *List*, the other a *Fatio*: his other Form is like *Palladio's*, com-

prehending 3 petty Members, viz. a *Tenia*, and 2 *Fatio's*.

7. *Ionick*.] According to *Vitruvius's* Order, this grand Member ought to be  $\frac{1}{2}$  a Module high; he hath described 2 Forms of *Architraves*, in the *Ionick* Order, viz. one for the *Ionick* Column, without a Pedestal, and the other with a Pedestal: and 1st I will describe that without a Pedestal; the which he composes of 4 minuter Parts, viz. 3 *Fascia's*, and a *Cimatium*; which is thus divided; the whole Altitude is divided into 7 Parts, the uppermost of which is allotted to the *Cimatium*, which is subdivided into 3 Parts, the uppermost of which is for the *List*, and the 2 remaining, for the O.-G. The other 6 remaining Parts, they divide into 12, 5 of which he makes the upper *Fascia*, 4 the middle one, and 3 the lower. The other for the *Ionick* Column, with a Pedestal, he thus proportions, viz. He reckons the whole Heighth of the *Architrave*, *Freeze*, and *Cornish*, to be 2 Modules, the which he divides into 10 Parts, 3 of which are for the *Architrave*, (which is 36 m.) the which he distinguishes into 6 minuter Parts, or Members; the which he thus names, (beginning at the Top, and so descending) viz. A *Fillet*, a *Cirra*, a *Thorus*, and 3 *Fascia's*; all which smaller Members he thus finds, viz. He 1st divides the whole Heighth into 6 equal Parts, the uppermost of which Parts he subdivides into 4 Parts, the highest of these 4 is for the *Fillet*,

*Fillet*, the 2 next of the 4 are allotted to the *Cima*, and the 4th remaining, is for the *Thorus*. The 5 grand Divisions remaining, he subdivides into 12, which are thus distributed, viz 5 for the upper, 4 for the middle, and 3 for the lower *Fascia*. *Palladio* assigneth 34 m for the Altitude of this *Architrave*, according to his Scheme of this Member, it is composed of 7 Parts, viz. A *List*, a *Cima*, 3 *Fascia*'s, and 2 *Astragals*; the which he thus proportions, viz To the *List*, (which is above the *Cima*, for I will descend with the Description) he allots  $2\frac{3}{4}$  m. the *Cima*  $4\frac{1}{2}$  m. To the upper *Fascia*, he allows  $10\frac{1}{8}$  m. to the *Astragal* at his Foot  $\frac{1}{2}$  m. the middle *Fascia*, is to contain  $7\frac{5}{8}$  m. and the *Astragal* at his foot  $1\frac{1}{3}$  m. to the lower *Fascia*, he assigns  $6\frac{2}{3}$  m. all which being added into one Sum amounts to  $34\frac{1}{2}$  m. *Scamozzi* makes the *Ionick Architrave*, 35 m. high and of the same Shape with *Vitruvius*'s second, viz To consist of 6 Parts, viz A *List*, *Cima*, *Astragal* (or *Thorus*) and 3 *Fascia*'s, which he thus proportions; he allots to the *List*,  $2\frac{1}{2}$  m. to the *Cima*, 4 m. to the *Thorus*, 2 m. to the upper *Fascia*,  $11\frac{1}{2}$  m. to the middle one  $8\frac{1}{2}$  m. and to the lower one  $6\frac{1}{2}$  m.

*Vignola*, allows  $37\frac{1}{2}$  m. to the *Ionick Architrave*, in Height. and as to the Form, his is much the same with *Vitruvius*'s 1st. of this Order.

8 *Corinthian*] According to *Vitruvius*, ought to be  $\frac{1}{2}$  a Module high; but you must note

this is for the *Corinthian Column*, without a *Pedestal*; this Member he divides into 7 Parts, the uppermost of these is the *Cimatium*, the 6 remaining Parts he divides into 12, 5 of which he allots to the upper *Fascia*,  $\frac{1}{8}$  part of this *Fascia* is to be allow'd for a *Bead* at his Foot, 4 of the 12 Parts he allows to the middle *Fascia*, and  $\frac{1}{8}$  of this *Fascia*, he makes the *Bead* of at the Foot; and the 3 Parts remaining, he makes the lower *Fascia*. The *Architrave* for the *Corinthian Order* with a *Pedestal*. *Vitruvius* alloweth a larger Altitude, than that without; it consists of the same Members, both for Number and Form, with the former *Architrave*, but they differ in Dimensions. The Division, and Subdivision of which, take as followeth: The whole Height of the *Architrave*, ought to be  $\frac{1}{4}$  of the Height of the Column; (nearly to  $\frac{2}{8}$  of the Body of the Column below) which is — to  $40\frac{1}{2}$  m. This Altitude he divides into 7 equal Parts, and at the uppermost of these 7, he maketh a *Cimatium*, and the 6 remaining, he divides into 12 equal Divisions, 5 of which are allotted to the upper *Fascia*, 4 to the middle one, and 3 to the lower one: The upper, and middle *Fascia*, he subdivides into 8 Parts each, one of these 8ths he allows for a *Bead* at the Foot of each of these *Fascia*'s.

*Palladio* makes this *Architrave* to contain 8 Parts, viz. 1 *List* 1 *Cime*, 3 *Beads*, and 3 *Fascia*'s; the Height of all



which, he orders to be 36 m. which he thus subdivides *viz.* To the (upper Members, or) *List*, he allows  $2\frac{1}{4}$  m. the next in order, is a *Cima*, and the next in order is of 2 m. high, at the Foot of the which is a *Bead*; then follows the upper *Fascia* with his *Bead*, at his Foot, both which contains about  $13\frac{1}{2}$  m. then comes the middle *Fascia*, and his *Bead*, which contain  $8\frac{1}{2}$  m. and last of all the lower *Fascia*, of  $6\frac{1}{4}$  m. high

*Scamozzi* reckons the whole Height of this *Architrave* to be 40 m. the which he subdivides into 9 small Members, *viz.* (beginning at the Top descending) a *List* of 2 m. a *Casement*,  $3\frac{1}{4}$  m. and O - G of  $2\frac{3}{4}$  m. a *Bead* of  $1\frac{1}{2}$  m. a *Fascia* of 12 m. and his *Bead* of 2 m. the middle *Fascia*  $8\frac{1}{2}$  m. and his *Bead*  $1\frac{3}{4}$  m. and lower *Fascia* of  $6\frac{1}{2}$  m. in all 40. m. as before said.

*Vignola* makes the Corinthian *Architrave* to be 45 m. high, the which he subdivides into eight smaller Members, as *Palladio* doth, *viz.* a *List*, a *Cima*, 3 *Beads*, and 3 *Fascia's*.

9. Composite, Compound, or Roman. *Vitruvius* makes the *Architrave* in this Column, and the *Frieze* and *Cornish*, all of an equal Height, *viz.* Each of which is equal in Height to the Diameter of the Column above, just under the *Capital*; which is  $\frac{1}{2}$  of a Module, — 50 m. This *Architrave*, *Vitruvius* divides into 6 Parts, one of which is for the *Cimatium*, and its *Boulton* under it; this upper 6th Part he divides into 4, and

one of these 4 he allows for the *Fillet* above the *Cima*, the 2 next for the *Cima* it self, and the 4th remaining he allots for the small *Boulton* under the *Cima*, the other five grand Divisions, he subdivides into 12 minuter Parts, 5 of which Parts he assigns for the upper *Fascia*, 4 for the middle one, and 3 for the lower; the upper and middle *Fascia's* he subdivides into 8 Parts each, and one of these 8ths he allows for a *Bead*, at the Foot of each of these *Fascia's*.

*Palladio* makes this *Architrave* 45 m. high, the which he distributes amongst 7 particular minuter Members, which I will thus reckon up in Order (beginning at the Top, and so descending) And 1st, to the *List*, he allows  $2\frac{1}{8}$  m. to the *Casement*.  $4\frac{1}{8}$  m. to the O. G.  $9\frac{1}{4}$  to the *Bead*  $1\frac{1}{4}$  to the upper *Fascia*, 15 m. to an O. G. at his Foot  $2\frac{1}{4}$ , and to the lower *Fascia* 11 m.

*Scamozzi* makes this 40 m. high, the which he divides amongst these 8 following Members, or Parts, *viz.* (descending) 1st a *List* of 3 m. 2dly, an O - G of  $4\frac{1}{2}$  m. 3dly, an *Astragal* of 2 m. 4thly, the upper *Fascia* of a  $11\frac{3}{4}$  m. 5thly, a *Bead* at his Foot of  $2\frac{1}{4}$  m. 6thly, the middle *Fascia* of  $8\frac{1}{2}$  m. 7thly his at his Foot  $1\frac{1}{2}$  m. 8thly, and lastly, the lower *Fascia* of  $6\frac{1}{2}$  m.

*Vignola* makes this *Architrave*, 45 m. in Altitude; the which he divides into 7 Members, a *List*, a *Casement*, a *Boulton*, a *Fillet*, a *Fascia*, a *Bead*, and a *Fascia*.

10. *Measuring.*] As to measuring of *Architraves*, in Buildings, (whether of *Brick* or *Stone*) they are commonly done by the Foot Lineal, and therefore the Length being taken in Feet, the Content is also had at the same Time.

11. *Price.*] As to their Value, they are different according to their Breadth, or Wideness: *Architraves* of Stone, about Doors and Windows, Mr. *Wing* saith, they are commonly reckon'd 1 *d.* per Inch broad, at 1 Foot: E. G. if it be 9 n. broad, it's worth 9 *d.* per Foot, 10 n. 10 *d.* &c.

### *Aræostyle.*

This Word *Vitruvius* uses to signify the greatest Interval or Distance which can be made between the Columns; consisting of eight Modules, or four Diameters. It comes from

the Greek *Araios*, thin-set; or *Rare* and *Stylos*, a Column.

### *Ash.*

*Of Sawing.*] In some Places they have 3 *s.* per Hundred, in others 3 *s.* 6 *d.* and other some 4 *s.* The Price varies in this, as it doth in other Businesses, viz. according to the Custom of the Place; but it is certainly worth 6 *d.* per Hundred (at least) more than 'tis to saw Oak.

Now I am upon the Subject of one of the most useful Timber-trees (the *Ash*) it may not be amiss to quote a few Lines out of our incomparable Poet, old *Spencer*, giving us such a succinct Account of the Nature of all (or most) Timber-trees, that 'tis worth every Builder's While to get them by Heart, which he may the more easily do, as they are in Rhime.

*Much can they praise the Trees so straight and high,  
The sailing Pine, the Cedar proud and tall,  
The Vine-prop Elm, the Poplar never dry,  
The Builder Oak, sole King of Forests all,  
The Aspin good for Staves, the Cypress Funeral.  
The Laurel, meed of mighty Conquerors,  
And Poets sage; the Firr, that weepeth still,  
The Willow worn of forlorn Paramours;  
The Eugh obedient to the Bender's Will;  
The Birch for Shafts, the Sallow for the Mill;  
The Myrrhe sweet, bleeding in the bitter Wound;  
The warlike Beech, the Ash for Nothing ill,  
The fruitful Olive, and the Platane round,  
The Carver Holme, the Maple seldom inward sound.*

*Asblar.*

1. *What.*] I understand by Workmen, that by this Word, they mean common, or free Stones, as they come out of the Quarry of different Lengths and Thicknesses. Mr. *Leybourn* saith, that 9 n. is the common Thickness.

2. *Price.*] Mr. *Wing* saith, in *Rutland*, they commonly value them at 3 *d.* per Foot at the Quarry.

About us (in *Sussex* and *Kent*), they toil them, being a common ordinary sort of Stone by the Load, about 18 or 20 Foot makes a Load, which costs, if they come rough from the Quarry about 3 *d.* per Foot; being laid down at the Place, where they are to be used; but if they are ready scapted, then they are valued at about 4 *d.* per Foot. But if they are bought rough at the Quarry then they are valued about 2 *d.* per Foot; but if scapted, then about 3 *d.* per Foot. But in some other Places in *Kent* and *Sussex*, I have known them sold rough at the Quarry for about 1  $\frac{1}{2}$  *d.* per Foot, and for 2  $\frac{1}{2}$  *d.* per Foot scapted; but if they were laid down at the Place for Use rough, then they were usually valued at about 2  $\frac{1}{2}$  *d.* per Foot, and if ready scapted, at about 3  $\frac{1}{2}$  per Foot.

But as to the real value of Stones, or *Asblar*, in all Places, it's impossible to give a certain Rule to know it: Because the Price differs; 1st, According to the different Customs of the Places. And 2dly, The Cir-

cumstances of the Quarry. And 3dly, Goodness of the *Asblar*. To all which 3 Heads I shall briefly say something. 1st, Of the Customs of Places, by which I mean as to Carriage; I have known Stones carried above a Mile for 1 *s.* 8 *d.* per Load, at one Place; and again, at another Place the usual Price to carry a Load but about  $\frac{1}{2}$  a Mile was 2 *s.* which is 4 *d.* per Load more than at the 1st Place tho' they were carried but  $\frac{1}{2}$  so far.

2dly. As to the Circumstances of the Quarry, which I shall consider under 2 Heads. And 1st, Whether the Stones are drawn in inclosed Land, or on the Lord's Waste, (*viz.* In the High-ways, or on Commons, &c.) For if they are drawn within Land (as they commonly call it) he that is the Proprietor of the Land, will be paid well for damaging his Ground, both by drawing, and carrying the Stones out of his Land. Whereas, if they are drawn on the Lord's Waste, the Lord hath only (commonly) a small Acknowledgment (by the Load, or so forth) for Trespassing upon his Waste.

3dly. As to the Goodness of Stones, that may be consider'd of under 2 Heads, *viz.* Durability, and Magnitude. And 1st, Of Durability; this wholly depends on Experience; for none can certainly tell when a new Quarry is first opened, how the Stones may prove; for some Stones, when they are taken out of the Quarry, are very soft and friable, and

being



being but a few Years exposed to the Weather, moulder into Sand; tho' some of these soft *Stones* are indurated by being exposed to the open Air; but as for hard *Stones*, they are generally durable, being of a more solid and firm Consistence. 2dly. As to their Magnitude, I need not say much, for all know that large *Stones* must needs be better, and make firmer Works than small, which are only fit for filling Work in thick Walls, or to use in such Places where the Country affords no better. But 'tis too often, through the Stone-drawer's Carelessness, or Ignorance, that *Stones* are broken up so small in the Quarry; and therefore to promote (in some Measure) so useful an Art; I shall, when I come to speak of *Stones*, lay down some Precepts to be observ'd in drawing of *Stones*, as I receiv'd it from an ancient experienced *Stone Drawer*, who always drew the best *stones* on our Side the Country.

I might have added a third Head to the Circumstances of the Quarry; which because I did not think of then, I shall here annex it, tho' it be not so exactly in its proper Place; Which third Head is this, *viz.* There is a great Difference as to Quarries, in respect to the Position of the *Stones* in the Ground, which may be again considered under two Heads, *viz.* As to their Depth in the Ground, and their Manner of lying there. And first, as to their Depth: When they lie a considerable

Depth, it requires a great deal of Labour to remove the Earth over the *Stones*, or uncope it, as Workmen call it. 2dly, If they lie almost even with the Surface of the Ground, then it will require but little work to uncover them. And 2dly, As to their manner of lying in the Ground, that is also different, and that in two Respects; for if the Quarry consist of a Rock, it will require more Labour to raise the *Stones*, and break them fit for Use, than if the *Stones* lie separate, and dis-united. All which forecited Circumstances, being duly consider'd, will make the Price of *Stones* very uncertain; for I have known *Stones* drawn for 9 *d* per Load, and I have known 3 *s* per Load given.

Before I conclude this of *Asblar*, I shall add something to the third General Head, of the Goodness of *Stones*. and that shall be the third Division of that Head, *viz.* The Form of *Stones* ought to be consider'd, as to their being raised Square, and not with obtuse, and acute Angles, which requires more Work in Scapting and waists more of the *Stones*, V. P. *Stones* of drawing.

### *Asblaring.*

Quartering (to tack to) in Garrets about 2  $\frac{1}{2}$ , or 3 Foot high, perpendicular to the Floor, up to the under side of the Rafters; 'tis from 4 to 6 *s.* per Square Workmanship.

*Astragal.*

A little round Moulding, which encompasses the Top of the Fust, or Shaft of a Column. It comes from the Greek *Astragalos*, the Bone of the Heel. The Shaft always terminates a-top with an *Astragal*, and at Bottom with a *Fillet*, which in this Place is call'd *Ozla*.

*Attick.*

In building, a little Order, placed upon another much greater; for instead of Pillars, this Order has Nothing but Pilasters, with a Cornice Architraved for an Entablement; as that for Instance, in the Castle of *Versailles*, above the *Ionick*, on the Side of the Garden.

*Attick, or Athenian Base.*

The same as Palladio's *Ionick* Base, which see.

## B.

*Back, Baguette.*

A Kind of *Astragal* or *Hip* moulding is a Term in Carpentry, by which they signifie the outward Angle or the Hips, or Corners of a Roof; which in square Frames, where the Roof is  $\frac{3}{4}$  Pitch, contains an Angle of 116 Degrees. 12 m.

It's also a Term used by Iron-mongers to signifie a certain sort of Nails, V. Nails.

N. 2.

*Bake-House.*

1. *What.*] It's a Room of Office, in all Noble Buildings, where the Oven is placed &c.

2. *Its Position*] According to the Rules of Sir Henry Wotton, it ought to be placed on the South-side of any Building.

*Balcony.*

1. *What.*] Is a kind of open Gallery, (without the Walls of a House, or Building) for People to stand in, and behold any Action, as Pageants, and the like, in Cities, or to take the Air, &c. This Jutty, or projective Building, commonly is in the midst of the Front of a House, if there be but one Balcony to it; and for the most part level with the 1<sup>st</sup>. Floor above Stairs. And they are sometimes of Wood, and sometimes of Iron; the wooden consist of Rails and Ballisters, and so do the Iron ones sometimes, but not always, for they are sometimes made of cast Iron of various Figures in semi-Relief, and others of wrought Iron, in crail'd Work, or Flourishes, of different Shapes, according to the Fancy of the Master, or Workman.

2. *Price*] Wooden Balconies are commonly done by the Yard, viz. From 3 to 5 s. per Yard, Workmanship, according as what Work the Carpenter bestows on it.

Iron Balconies are commonly done by the lb. (viz wrought ones)

ones) from 4 *d.* to 8 *d.* per lb. according to the Curiosity of the Work.

Here I can't but take Notice what Sir Henry Wotton says of all Inlets or Outlets (such as Windows, Balconies, &c) that they should not approach too near the Angles of the Walls; for that it were indeed a most essential Solecism, to weaken that Part which must strengthen all the rest: A Precept (says he) well recorded, but ill practised by the Italians themselves, particularly at Venice, where he had observ'd divers Pergoli, or Mencina (as Vitruvius seems to call 'em, which are certain ballisted Out-standings, to satisfy Curiosity of Sight) very dangerously set forth, upon the very Point it self of the Mural Angle.

### *Baldachin.*

It's a perfect French Word, and they pronounce it *Baldachin*, which properly signifies a Canopy carry'd over the Holy Sacrament, among the Roman Catholicks. 'Tis used by Architects to signify a piece of Architecture, built in fashion of a Canopy, or Crown, supported by several Pillars to serve for a covering to an Altar; some also use it to signify a Shell over the Front Door of a House.

### *Balkes.*

Great pieces of Timber coming from beyond the Seas by Floats.

### *Ballon.*

French, a Term in Architecture, signifying the round Globe of the Top of a Peer, or Pillar.

### *Ballustrade.*

A Term in Architecture, used to signify a Row of little turn'd Pillars, call'd *Balusters*, made of Marble, Iron Wood, or Stone, so high, as for a Man to rest his Elbows, fixed upon a Terrace, or upon the Top of a Building, or to make any Separation.

### *Balluster, (or Bannister by Corruption.)*

1. *What.]* It's a small Column, or Pilaster, of different Sizes, viz from 1  $\frac{1}{4}$  Inches, to 4 in Square, or Diameter: Their Dimensions and Forms are various, according to the Fancy of the Workmen. They are adorn'd with Mouldings. The Word comes from the Latin *Balaustrum*, which it self is borrow'd from the Greek *Balaustin*, the Flower of the wild Pomegranate, which it very much resembles.

2. *Their Use.]* They with Rails are placed on Stairs in the Fronts of Galleries, in Churches, &c. Round Altar-pieces in Churches, on Terrace Walks, and in Balconies, and Plat-forms, &c.

3. *Their Price.]* With Rails, &c. of Wood on Balconies, Platforms, Stairs, &c. accord-



ing to the Work, viz. About 3 d per Yard, running Measure.

4. Of Turning them only.] 1 d per Inch Workmanship, is the usual Allowance.

5. Of Painting them ] They, with what belongs to them, are usually painted by the Yard; the Custom of Measuring, which is this, viz. Both sides of the Ballisters are measured as if it were flat Measure, including the Vacuity betwixt the Ballisters; which being cast up in Feet and Parts, it's reduced into Yards as other plain Painting is. Mr. Leybourn saith, That he hath seen the Experiment tryed, by girting the Ballisters, to find the Difference betwixt that Way, and measuring them, and the Vacuity on both Sides. as if it were flat; and he found that the Difference would not counter-value the trouble of Girting. But this stands to Reason, it should be nearly the same, because it's the Custom to set them but their Square or Diameter asunder, and then the Flanks make good the Vacuities.

### *Band.*

In Architecture, is any flat Member that is broad, and not very deep; the Word *Face*, from the Latin *Fascia*, is sometimes used to signify the same Thing;

### *Bandelets.*

It is derived from the French, *Bandelette* a little *Fillet*, or Band; 'tis used by Architects, to signifie the 3 Parts that compose an *Architrave*.

### *Bannister.*

V. *Ballister.*

### *Barbican.*

A Term in *Architecture*, derived from the French, and made use of to signifie an Outwork in a Building.

### *Bargecourse.*

It is a Term used by Workmen, by which they signify a part of the *Tyling*, which projects over without the principal Rafters in all Buildings, where there is either a Gable or a *Kirkin-Head*.

### *Barn.*

Is a Word that needs no Explanation, because 'tis a Building that every one knows, they being so common: But I shall add 2 Things concerning them, and the

1<sup>st</sup>. Shall be what Mr. Worlidge advises concerning placing them, which is this, That it is very Inconvenient to build *Barns*, or *Stables*, or such like Places, too near to a House, because Cattle, Poultry, &c. require to be kept near

near to Barns, &c. which would then annoy a House.

2. *Of the Price of Framing, &c.* ] I have known the Carcass of a Barn for 3 s. 6 d. per Square, Carpenters Work only, and I have known 8 s. per Square given for Carpenters Work, the Felling, Hewing, and Sawing his Timber and Boards, and finding Nails.

I have been inform'd by some Workmen, that the Charge of a Square of Building of the Timber-work of a Timber-Barn, may be thus computed, viz. 4 s. per Square for Sawing the Boards, (considering their lapping one over another, and the Staving the Logs 2 s. per Square for Sawing the Timber Members, 3 s. 6 d. per Square for framing the Carcass, and from 4 s. to 7 s. per Square for the value of the Timber, reckoning the Price of the Timber from 12 s. to 21 s. per Tun; and one Tun to make 3 s. Square of Frame in Barn-work. He reckon'd rough Timber, viz. Unhew'd, or Squar'd, and that a Tun of rough Timber (which is equal to a Load of hew'd: From these Computations, we may reckon the whole Value of a Square of such Timber-work to be worth from 3 s. 6 d. to 16 s. 6 d. per Square.

### Bars.

Of Iron for upright ones for Windows, their usual Price is 3 d.  $\frac{1}{2}$ , or 4 d. per lb. in London.

### Bar-posts.

Are a necessary sort of Posts, much used in the Country, 2 of which, and 5 Rails or Bars, serve instead of a Gate, for an Inlet to Fields, and other Inclosures; each of these Posts consist of 5 Mortices, and those Posts are commonly about 6 Foot, or 6  $\frac{1}{2}$  Foot long, 4 Foot of which stands above Ground. These Posts are in some Places made by the Piece, viz. 1 d. or 1 d.  $\frac{1}{2}$  per Post Hewing, and  $\frac{1}{2}$  d. per Hole for Morticing them.

### Base.

1. From the Greek, *Basis*, a Rest or Support. Any Body, which bears up another; but is particularly applied to the Bottoms of Columns and Pedestals.

2. The *Base* of a Column is also sometimes call'd *Spire*, from the Latin *Spira*, which signifies the Fold of a Serpent laid at rest, or a Coil of a Cable, &c. These making a Figure not unlike that.

3. *Kinds.* ] They are distinguished by *Architects* into 5 Kinds, viz. *Tuscan*, *Dorick*, *Ionick*, *Corinthian*, and *Composite*, according to the 5 Orders of Columns.

4. *Parts, or Members* ] Exceed the number of the Kinds, because that some Authors differ from others in their Form; of each of which I shall give you the following Account.

5. The

5. The *Tuscan*] According to *Vitruvius*, must be  $\frac{1}{2}$  a Module high; this cross Member consists of 3 Minuter Members, or Parts, *viz.* a *Plinth*, a *Thorus*, and a *Fillet*, and is thus divided, and subdivided; the whole Altitude being — 30, is divided into 2 equal parts, the lower one of these is for the *Plinth*, and the upper part of the 2 is to be subdivided into 3 equal parts, the lower of these are for the *Thorus*, and the upper one for the *Fillet*.

*Palladio* alloweth this Base to be 30 Min. high also; the which he distributed amongst 3 smaller Members, *viz.* a *Plinth*, or *Orlo*, a *Torus*, and a *Listella*, or *Cincture*. The *Plinth* is 15 m. the *Torus* 12  $\frac{2}{3}$  m. and the *Listella* 2  $\frac{2}{3}$  min. high.

*Scamozzi* also alloweth this Base 30 m. in height, but then he reckons but 2 Members, or Parts to it, and they are a *Plinth* of 18 m. and a *Thorus* of 12 m. altho' at the same time he places above the *Thorus* a *List* of 3 m. which in all (I think) makes more than  $\frac{1}{2}$  a Module by 3 m.

*Vignola* also makes the Base of 3 Parts, *viz.* a *Plinth*, *Thorus*, and *Fillet*; all which he reckons 30 m. —  $\frac{1}{2}$  a Module.

6. *Dorick*.] This Base *Vitruvius* reckons to consist of 6 Parts, *viz.* a *Plinth* 2 *Thoruses*, 1 *Scotia*, and 2 *Lists*; the whole height of all these, he allows to be 30 m. which he thus divided, *viz.* 1st. into 3 Parts, the lower one of these is for the *Plinth*, the 2 Parts remain

ing, he subdivides into the 4, the upper one of which 4, he allots to the upper *Thorus*, the 3 lower Parts of these 4, he divides into 2. The lower of which 2 is for the lower *Thorus*, then he subdivides the upper part of these 2 into 7 equal parts, the upper and lower of these 7, are for the 2 *Lists*, and the 5 betwixt them is for the *Scotia*. But amongst all these 6 Members, or Parts of the Base, there is one large *Fillet*, which is  $\frac{1}{4}$  part of the Module, but this *Fillet* he reckons to be no part of the Base but a part of the Body of the Column.

*Palladio* assigneth 30 m. for the Altitude of this Base: According to his Scheme of this Member, it is composed of 7 Parts, *viz.* a *Plinth*, 2 *Thoruses*, 3 *Annulets*, and a *Scotia*, or *Cavetto*; the which he thus proportions, *viz.* To the *Plinth*, (the which I think he may more properly call a *Scotia*, or *Casement*) which is wrought hollow, he allots 10 m, to the lower *Thorus* 7  $\frac{1}{3}$  m, to the lower *Annulet* 1  $\frac{1}{4}$  m, to the *Cavetto* 4  $\frac{2}{3}$  m, to the middle *Annulet* 1  $\frac{1}{4}$ , to the upper *Thorus*, 4  $\frac{1}{4}$ , and to the upper *Annulet* 1  $\frac{1}{4}$ .

*Scamozzi* makes the *Dorick* base 30 m, high, the which he subdivides amongst 6 small Members, *viz.* (beginning below, and so ascending) 1st. A *Plinth*, to which he allows 10  $\frac{1}{2}$  m. 2. A *Thorus* of 8 m. 3. A *List* of 1 m. 4. A *Scotia* of 4 m. 5. A *List* of 1 m. And 6. A *Thorus* of 5  $\frac{1}{2}$  m. Above all these he places a *List* of 2 m which he doth not reckon into



to the *Base*, but to be part of the *Body* of the *Column*.

*Vignola* also reckons the height of the *Base*  $\frac{1}{2}$  the *Diameter* of the *Column* below, but he makes it to consist of but 4 parts, viz. A *Plinth*, a large and small *Thorus*, and a *List*.

7. *Ionick*, ] According to *Vitruvius's* Order, is  $\frac{1}{2}$  a *Module* high, he describes 2 sorts of *Bases* in this Order, one for the *Ionick* *Column* without a *Pedestal*, the other with; each of which *Bases* consist of smaller *Members*; but the *Bases* differ in the *Dimensions* of their *Parts*. The *Members* whereof they consist, are these following, viz. A *Plinth*, 4 *Fillet*s, 2 *Scotia*'s, 2 *Astragals*, and a *Thorus*. I shall 1<sup>st</sup>. describe the *Dimensions* of the *Parts* of the *Ionick* *Base*, without a *Pedestal*. This *Base* he thus divideth and subdivideth, viz. He divideth the whole height of the *Base* into 3 equal *Parts*; the lower one of which is the height of the *Plinth*, the 2 upper, and remaining *Parts*, he subdivideth into 7 equal *Parts*, the upper 3 of which, make the *Thorus*, the 4 7<sup>th</sup> remaining, he subdivideth into 8 equal parts,  $\frac{1}{2}$  of the lower 8<sup>th</sup> makes the lower *Fillet*, the other  $\frac{1}{2}$  and the 2 d. 8<sup>th</sup> and  $\frac{1}{2}$  the 3 d. 8<sup>th</sup>. makes the 1<sup>st</sup> *Scotia*, and the upper  $\frac{1}{2}$  of the 3 d. 8<sup>th</sup>. makes the 2<sup>d</sup>. *Fillet*, the 4<sup>th</sup> and 5<sup>th</sup>. makes the 2 *Astragals*,  $\frac{1}{2}$  the 6<sup>th</sup>. 8<sup>th</sup> makes the 3 d. *Fillet*, the upper  $\frac{1}{2}$  of the 6<sup>th</sup> 8<sup>th</sup>., and all the 7<sup>th</sup>. and  $\frac{1}{2}$  of the last, or

upmost 8<sup>th</sup>. makes the second *Scotia*, the  $\frac{2}{3}$  of the last 8<sup>th</sup>. remaining, makes the upper *Fillet*, which subjoyns to the *Thorus*: Above the *Thorus* he places another *Fillet*, which he doth not reckon any *Part* of the *Base*, but part of the *Body* of the *Column*, which *Fillet* is  $\frac{1}{2}$  of the *Body* of the *Column*, — 5 m.

The *Ionick* *Base* with a *Pedestal*, he thus divides into parts, viz. 1<sup>st</sup> Into 3 equal parts, the lower one of these is the height of the *Plinth*, the  $\frac{2}{3}$  remaining, he divides into 3 equal parts. the upmost of which he assigns for the *Thorus*, the  $\frac{2}{3}$  remaining, he subdivides into 12 equal parts,  $\frac{1}{2}$  the lower  $\frac{1}{2}$  he assigns for the *Fillet*. above the *Plinth*, the remaining  $\frac{1}{2}$  of  $\frac{1}{2}$ , and the 3 next 12<sup>ths</sup>. make the first *Scotia*, the 5<sup>th</sup> 12<sup>th</sup>. make the 2<sup>d</sup>. *Fillet*, the 6 and 7<sup>th</sup>. makes the 2 *Astragals*, and  $\frac{1}{2}$  the 8<sup>th</sup>. makes the next *Fillet*, the other  $\frac{1}{2}$  of the 8<sup>th</sup> and the 9<sup>th</sup> 10<sup>th</sup>. and 11<sup>th</sup> make the 2<sup>d</sup>. *Scotia*, and the 12<sup>th</sup>. and last part makes the upper *Fillet*, which is under the *Thorus*.

There is also a *Fillet* above the *Thorus* which is of the same height with that without a *Pedestal*.

*Palladio* assigneth 30 m. for the *Altitude* of this *Base*, and according to his *Scheme* of this *Member* into 6 smaller *Members*, 1<sup>st</sup>. A *Plinth*, (or rather as he delineates it a *Casement*) of 10 m. 2. A *Thorus* of  $7\frac{1}{2}$  m. 3. A *List* of  $1\frac{1}{4}$  m. 4. A *Scotia* of  $4\frac{3}{4}$  m. 5. Another *List*, or *Cincture* of  $1\frac{1}{4}$  m.

6 A *Thorus*

6. A *Thorus* of  $5\frac{1}{4}$  m. all which makes 30 m. which compleats his *Base*. Above which on the Foot of the Body of the *Column*, he places an *Astragal* of  $2\frac{1}{4}$  m. and above that a *Ceinture* of  $1\frac{1}{4}$  m. all which makes  $33\frac{1}{2}$  m. *Scamozzi* makes the *Ionick Base* 30 m. high also, and of the same number of parts and form with *Palladio*, viz. 1st. A *Plinth*, (which is concave) of  $10\frac{1}{2}$  m. A *Thorus* of 8 m. 3. A *List* of 1 Min. 4. A *Scotia* of  $4\frac{1}{2}$  m. 5 A *List* of 1 m. 6. Another *Thorus* of 5 m. all which makes the *Base* of 30 m, above which on the *Column*, are 2 small Members more, viz. An *Astragal* of  $2\frac{1}{2}$  m. and a *List* of  $1\frac{1}{2}$  m. all which added together make 34 m. in height.

*Vignola* Composes his *Ionick Base*, of the same number of small Members, and of the same form with *Vitruvius*.

8. The *Corinthian*, ] According to *Vitruvius*, is  $\frac{1}{2}$  a Module high, both in the *Corinthian Column*, with a *Pedestal*, and without a *Pedestal*; that without a *Pedestal*, he makes to consist of 11 smaller Members, viz.: A *Plinth*, 2 *Thoruses*, 4 *Fillet*s, 2 *Scotia*'s, and 2 *Astragals*: This *Base*, viz. 1st He divides the whole height into 4 equal parts, the lower one of these Divisions he assigns for the *Plinth*, the 3 parts remaining, he again divides into 5 equal parts, the upper one of these 5 he allots for the upper *Thorus* (which is the highest Member in the *Base*) the lower *Thorus* he maketh to contain 5 quarters of one of these 5th parts, viz. All the 1st. or lower 5th.

part, and  $\frac{1}{2}$  of the 2d. so that  $\frac{1}{5}$  be taken for the upper *Thorus*, and one 5th. and a quarter of  $\frac{1}{5}$  below for the lower *Thorus*, there remains but 2 of these 5ths. 3 of one 5th, the which he subdivides into 12 equal parts of  $\frac{1}{2}$  of the lower 12th. he makes the 1st, or (lowest *Fillet*) then of the other  $\frac{1}{2}$ , and all the 2d. 3d. 4th. and  $\frac{1}{2}$  the 5th. he makes the lower *Scotia* of the remaining  $\frac{1}{2}$  of the 5th, 12th. part, he makes the 2d. *Fillet*, of the 6 and 7th parts he makes the 2 *Astragals*, of  $\frac{1}{2}$  the 8th. he makes the 3d. *Fillet*, of the other  $\frac{1}{2}$  of the 8, and all the 9, 10, and 11 and  $\frac{1}{2}$  the 12th, he makes the 2d. *Scotia*, and of the last  $\frac{1}{2}$  of the 12th. part, he makes the 4th. or last *Fillet*, which subjoyns the under side of the upper *Thorus*. Above the *Base* he adds a *Fillet*, which is  $2\frac{1}{4}$  of the Diameter of the *Column* in height, which is —  $2\frac{1}{2}$  m.

The *Base* for the *Corinthian Column*, with its *Pedestal*, is of the same height, and number of parts, and each part hath the same Dimensions, with that which hath no *Pedestal*.

*Palladio* makes this *Base* to contain 8 smaller Members, viz. 1 *Orlo*, 2 *Thoruses*, 2 *Astragals*, 2 *Ceintures*, and 1 *Scotia*, 'Tis my Thoughts, that either the Author, or the Ingraver, have made a great blunder in the Division, and Subdivision of this *Base*, which I exhibit to you as I found it, tho' I do suppose it to be false: The *Orlo* he makes  $9\frac{2}{3}$  m. the lower *Thorus* 7 m. the lower *Astragal*  $\frac{3}{4}$  m. (the which I am confident is

too little,) the lower *Cincture*  $\frac{1}{4}$  m. the *Scotia*  $3\frac{3}{4}$  m. the next *Cincture* has nothing set to him, but he appears about the same size with the other *Cincture*; then comes the next *Astragal* of  $\frac{1}{2}$  m. and then the upper *Thorus* of 5 m. above all these 8 Members of the *Base*, he places another *Astragal* of  $2\frac{1}{2}$  m. and above that a *Cincture*: Thus I have given you a very lame account of this Member, but I may thank the Author, or Graver or both for it, that it is no better.

*Scamozzi*, according to his Portraiture of this *Base*, makes it 30 m. high, and he divides this grand Member into 8 petty Members of the same Form with *Palladio*, viz. 1. Orlo of  $9\frac{1}{2}$  m. then a *Thorus* of 7 m. next an *Astragal* of 2 m. next a *List* of 1 m. then a *Scotia* of  $3\frac{1}{2}$  m. next another *List* of 1 m. and then another *Astragal* of  $1\frac{1}{2}$  m. and last of all, another *Thorus* of  $4\frac{1}{2}$  m. all which makes 30 m. Above the *Base* he places two other Members on the Foot of the *Column*, viz. An *Astragal* of  $2\frac{1}{2}$  m. and a *List* of 1 m. *Vignola* allows this *Base* to be 30 m. also; and as to the Form, he makes it much the same with *Vitruvius*.

9. *Composite*, *Compound*, or *Roman*. *Vitruvius* makes this *Base* to contain 30 m. in *Altitude*. This grand Member he divides into 10 smaller, viz. A *Plinth*, 3 *Thoruses*, (one of which is in the middle, where the two *Astragals* are in the *Corinthian Order*) 4 *Filletts*, and 2 *Scotias*. This Member he 1st divides into 4 Parts, the

lower one of which is for the Height of the *Plinth*, the other 3 Parts he subdivides into 5, of the upper one of the 5 he makes the upper *Thorus*, the lower *Thorus* he makes of the lower 5th and  $\frac{1}{4}$  of the 2d 5th. (so that the lower *Thorus* is  $\frac{4}{5}$  high; the 2d 5th Parts, and  $\frac{3}{4}$  remaining, he subdivides into 12 equal Parts, of  $\frac{1}{2}$  the lower 12th, he makes the 1st *Fillet*, of the other  $\frac{1}{2}$ , and all the 2d, 3d, 4th, and  $\frac{1}{2}$  the 5th he makes the 1st *Scotia*, of the remaining  $\frac{1}{2}$  of the 5th, he makes the 2d *Fillet*, of the 6th and 7th, he makes the middle *Thorus*; then of  $\frac{1}{2}$  the 8th he makes the 3d *Fillet*, of the remaining  $\frac{1}{2}$  of the 8th, and all the 9th, 10th, and 11th, and  $\frac{1}{2}$  the 12th, he makes the 2d *Scotia*, of the remaining  $\frac{1}{2}$  of the 12th he makes the last *Fillet*, which is just under the upper *Thorus*. Above the *Base*, on the Foot of the *Column*, he makes a *Fillet*, which is  $\frac{1}{4}$  of the Diameter of the *Column* below.

*Palladio* makes this *Base* 30 m. high, which he divides into 11 smaller Members, viz. An Orlo, 2 *Thoruses*, 4 *Listts*, 2 *Scotias*, and 2 *Astragals*, to the 1st Member, being an Orlo, (which is Concave) he allows 9 m. then follows 2 *Thoruses* of 7 m. then a *List* of  $\frac{1}{2}$  m. next a *Scotia* of 3 m. then another *List* of  $\frac{1}{2}$  m. then the 2 *Astragals*, each of 1 m. a-piece, then a *Fillet*, or *List* of  $\frac{1}{2}$  m. then a *Scotia* of 3 m. and then another *List* of  $\frac{1}{2}$  m. and then the upper *Thorus* of 4 m. above which on the Foot of the *Column*, he places another

ther



ther *Astragal* of 3 m. and above that a *List* of 1 m.

*Scamozzi* makes the Roman *Base* 30 m high, the which he divides amongst 7 smaller Members, viz 10 m. to a Concave *Plinth*, 7 m. to the 1st *Thorus*, 2 m. to an *Astragal*, 1 m. to the 1st *List*, 4 m. to the *Scotia*, 1 m. to the 2d *List*, and 5 m. to the upper *Thorus*, which is the highest Member in the *Base*; but above the *Base*, he places 2 Members, viz. An *Astragal* of  $2\frac{1}{2}$  m. and a *List* of  $1\frac{1}{4}$  m.

*Vignola* makes his Roman *Base* very much like *Vitruvius's*, only he places 2 *Astragals* in the middle betwixt the 2 *Scotia's*, where *Vitruvius* has a *Thorus*.

### *Basilic.*

This among the Ancients, was a large Hall, with Portico's, Isles, Tribunes and Tribunal, where the Kings themselves administred Justice; but the Name is somewhat differently applied now-a-days; being given to Churches and Temples; as also to certain spacious Halls in Princes Courts, where the People hold their Assemblies, and the Merchants meet and converse together; as that for Instance of the Palace at *Paris*. *Basilicos*, in Greek, signifies *Royal*.

### *Batement.*

A Term used by some Carpenters, signifying thereby to abate, or waste a piece of Stuff, by forming it to a design'd Purpose. Thus, instead of

asking how much was cut off from such a piece of Stuff, some Carpenters will ask what *Batement* that piece of Stuff had.

### *Batten.*

Say some, is a Scantling of Stuff, of 2, 3, or 4 Inches broad, and but seldom above 1 Inch thick, and the Length unlimited. But I must tell you what Sense I have observ'd Workmen to use it in, (by Workmen, I mean Carpenters and Joyners) which is this, viz. In Doors, and Windows of Shops, &c. which are not framed of whole Deal, or  $1\frac{1}{4}$  Inch Oak, with Stiles, Rails, and Pannels (as Wainscot is framed) and yet they are made to appear as if they were, by Means of Pieces which are bradded on (upon the plain Boards, which are joined together for) the Door, or Window, all round the Edges, and sometimes cross them, and up, and down, &c. According as how many Pannels the Workman designs the Door, or Window shall appear to have. These Pieces which are thus bradded on to represent Stiles, Rails and Montans are of different Breadths, according to the Design of the Artificer, as from 2, to 6 or 7 Inches, and commonly on one Edge of those which represent the Stiles, and the upper and lower Rails, and on both Edges of those which are to appear like Montans, and middle Rails, there is commonly some Moulding struck; as a Bead, an O.-G. or the like.

*Batten Doors.*

1. *What.*] *Batten Doors* are (as I said before) such as seem to be Wainscot ones, tho' they are not so; for Wainscot ones the *Pannels* are groved into the Framing; but here they first joint and glue the Boards which are cut to the full Length and Breadth of the Door-case, which Gluing being dry, they traverse them over, both in Length, and Breadth, with a long Plane, and then smooth them, and then fit on the *Battens* on the Front-side. And this is what they call single *Batten doors*; for you must note, there are double *Batten doors*, viz. Such as are batten'd on both Sides, tho' that is but seldom used.

But there are commonly used batten'd Doors, which are call'd double Doors, viz. Such as are front, or outer Doors; they are commonly made of whole Deal, and then batten'd on the out-side, and Pieces of 4 or 5 Inches broad, miter'd round on the Edges, on the inside of the Door, and then cross the Door betwixt these Pieces, it is lined with slit Deal, which makes it level with the miter'd Pieces. I have seen some Doors that have been lin'd with Pieces put Bereling, and not at right Angles, but near Miter to the Sides of the Door, and when all is plained off level, it hath been divided out in Rhombuses and struck with a Pencil, and at the Angles of the Rhombuses, were round headed Nails driven, which

added something of Beauty to the Work: This Way of Lining upon the Doors, viz. Pointing from the lower Corner behind, toward the upper Corner before, I believe may be a good way to prevent a Door from sagging, or sinking at the Fore-corner, when-ever the Joints shall happen to unglue.

2. *Price.*] As to the Price of such Doors, vid. Doors, N<sup>o</sup>. 4. where you will find Price of Materials, and Workmanship; but I shall here add, that for Workmanship of making *batten Doors* of slit Deal, about an Inch thick, (or of thin whole Deals) glued, and batten'd on one Side, 4 s. per Door, is a good moderate Price: But such as are mentioned above, (which are for Front, and other outer Doors) viz. both Batten'd, and Lin'd, are worth 7 s. per Door Workmanship.

*Batter.*

A Term used by Workmen, to signifie that a Wall, a piece of Timber, or the like, doth not stand up-right, but leans from you-ward, when you stand before it; but when it leans toward you, they say it *over-hangs*, or *hangs over*.

*Bay.*

The Word is used, to signifie (as it were) the Magnitude of a Barn; for if a Barn consist of a Floor, and two Heads, where they lay Corn, they say a Barn of two Bays; these Bays are

are from 14 to 20 Foot long, and Floors from 10 (which is the smallest Size) to 12 broad, and usually 20 long, which is the Breadth of the Barn: If a Bay be 20 Foot long, then there is commonly a pair of *Prick-posts* in the middle, and a *Beam* to hold in the Rod from bending the *Raisons*; but if the *Bays* are not above 16 Foot, and the Timber stout, then there is no *Posts*; but at the End of each Bay, where there is always hanging *Braces*, framed into the *Beam*, and *Posts*, and also a cross *Cell* to hold in the side *Cells* from flying out when the *Barn* is fill'd; and 'tis common for large Barns to consist of divers such *Bays*.

### *Bay-window.*

I understand to be such a one which is composed of an Arch of a Circle; and so by Consequence, such a one will stand without the Stress of the Building. By which Means Spectators may the better see what is acted in the Street.

### *Bead.*

A Moulding, so call'd, which is commonly made upon the Edge of a piece of Stuff; as for Example, 'tis common to see Joyners make a Moulding which is about a quarter of a Circle, on the upper Edge of a *Skirting board*; also on the Lining of a Door-Case, or the like, also on the inner, or lower Edge of an *Architrave*. A *Bead* and a *Boultin*, differ very little, only in Magnitude; for when they are large, Work

men commonly call them *Boultins*. Sometimes a *Bead-plain* is set on, upon the Edge of each *Fascia* of an *Architrave*, and sometimes also this Moulding (especially in the *Corinthian* and *Roman Order*) is cut, or carved, in short Embossments, which resembles Women's Beads in Semi-relief; and sometimes likewise an *Astragal* is thus carved; in both which, these Carvings are call'd *Beads*.

### *Beam.*

1. *What.*] In Building is a piece of Timber, which always lies cross the Building, into which the Feet of the principal Rafters are framed; no Building hath less than 2 of these *Beams*, viz. one at each Head; into these *Beams* the *Girders* of the Garret-floor are framed; and if it be a Timber-Building, the *Teazle Tennon*s of the *Posts* are framed. The *Teazle Tennon*s are made at right Angles to those which are made on the *Posts* to go into the *Raisons*, and the *Relish*, or Cheats of these *Teazle Tennon*s stand up within an Inch and a half of the top of the *Raison*; and the *Beam* is cauked down (which is the same as Dove-tailing a Cross) till the Cheeks of the Mortices in the *Beam* conjoin with those of the *Teazle Tennon* on the *Posts*.

2. *The Size.*] The *Beams*, according to an Act of Parliament, for the re-building of the City of London, after the dreadful Fire, were appointed to be of the following Scantlings, viz. Foot



	Foot.		Inch.		Inches.			
In length	{ 15 } must be	{ 7 }	{ 8 }	and	{ 5 }			
						{ 16 }	{ 10 }	{ 6 }

And so proportionably to their Lengths. But in the Country, where Timber is more plentiful; they generally make their *Beams* stouter.

Sir Henry Wotton advises, That all *Beams*, *Girders*, and *Summers*, ought to be of the strongest, and most durable Timber.

### *Bear.*

Timber is said to *bear* at its whole Length, when neither a *Brick-wall*, or *Posts*, &c. stand between the Ends of it. But if either a *Brick-wall*, or *Posts* be trimm'd up to the Timber, then it is said to *bear* only at the Distance between the *Brick-wall*, or *Post*, and either end of the Timber. Thus Carpenters usually ask what

### *Bearing?*

Such a Piece of Timber has the Answer to such a Demand, or Question, is 10, 12, 15. &c. Foot, according to the Length of the whole Timber, or else according to the Distance between either End of the Timber; and a

### *Bearer.*

*Viz.* A *Post*, or *Brick-wall*, that is trimm'd up between the ends of a piece of Timber to shorten its *Bearing*.

### *Beam-filling.*

1. *What.*] Is *Plasterers Work*, 'tis only filling up the vacant Space betwixt the *Raison* and the Roof, whether *Tiling*, *Thatching*, or any other Roof. 'Tis a sort of Work that is very customary in the Country, where they do not *Parge*, or (which is all one) *Plaister* their *Garrets*, they thus perform this sort of Work, *viz.* They take some pieces of *Stones*, or else *Bricks*, and lay them betwixt the *Rafters* upon the *Raison*, and then *Plaster* upon it with *Loam*, or else they set some *Tiles*, with one edge upon the *Raison*, and the other leans against the Roof, and then upon these *Tiles* they *Plaister* with *Loam*.

2. *Price.*] The usual Price for Workmanship only, in the Country, is  $\frac{1}{2}$  d. per Foot, or  $\frac{1}{2}$  d. per Yard, *Lineal Measure*.

### *Bed.*

Of a *Stone*, *What.* V. *Stons*, N. 4.

### *Bed-moulding,*

Or as some will have it,

### *Bedding-moulding.*

Is a Term used commonly amongst Workmen (but I did never observe it in any one of

the Treatises of the Greek, or Italian Architects. But however, our modern Artificers make use of this Compound Word, to signify those Members in a Cornice, which are below the Coronet, or Crown, E. G. 'Tis now common for Joiners to have their Bed-moulding to consist of these 4 Members, viz. 1. (below) an O. G. 2. A List 3. A large Boulton And 4th and lastly, under the Coronet another List. This is what they frequently call a Bed-moulding.

### Bevil.

Any Angle that is not square, is call'd a Bevel Angle; whether it be more obtuse, or more acute than a Right Angle; but if it be  $\frac{1}{2}$  as much as the Right Angle, viz. 45 Degrees, then Workmen call it Miter; they have also a Term, half Miter, which is an Angle that is  $\frac{1}{4}$  of a Quadrant, or Square, viz. An Angle of 22  $\frac{1}{2}$  Degrees; this they call  $\frac{1}{2}$  Miter.

	Foot		Inches. Inches.					
Which contain	{	7	}	must be	{	6	}	and 5
in Length		9		in their		7		
		11 or 12		Squares.		8		

So large they were order'd to be, and no less. They might (I suppose) be as much bigger as they pleased.

### Boarding of Walls.

See Weather-boarding.

### Bill.

All know a Bill to be an Account of Work done, Materials used, &c As for the Method of drawing up Tradesmen's Bills we shall give some Examples, under the following Heads, viz. Bricklayers Bills, Carpenters Bills, Glaziers Bills, and Smiths Bills; all which see in their proper Places.

### Binding Joists.

1. *What.] Binding Joists*, are those Joists in any Floor, into which the Trimmers of Staircase (or Well-hole for the Stairs) and Chimney-ways are framed; these Joists ought to be flouter than common Joists.

2. *Scantlin, or Size.] The Size of these*, as well as all other Timber Members, was settled by an Act of Parliament, before the Re building of London. According to which Act, *Binding Joists*,

### Boat.

A Term used among Ironmongers, to signify a certain sort of Nails; for which, see Nails.

### Bolts.

Of Iron, are of various Sorts. In Navigation, they have

have six Kinds, for which they have distinct Names; which we shall not here stay to describe. Some Iron-mongers distinguish those for House-building, into but 3 Sorts, *viz.* Plate, Round, and Spring Bolts. Plate, and Spring-bolts are made use of, to fasten Doors and Windows; and these are of different Sizes, and Prizes. I have known small *Spring-bolts* sold at 3 *d.*  $\frac{1}{2}$  per Piece, others at 9 *d.* others at 14 *d.* and so likewise *Plate-bolts*, some are 9 *d.* 10 *d.* &c. per Piece. There are also *Brass-knib'd Bolts*, short, are about 10 *d.* per piece; long, for *Folding-doors*, about 18 *d.* per Piece. *Iron Balcony-bolts*, about 1 *s.* There are also *Brass-plate Bolts*, at about 10 *d.* per Piece. There are also *Round bolts* (or long Iron pins) with a Head at one End, and a Key-Hole at the other; these are commonly sold by the lb. *viz.* 3 *d.*  $\frac{1}{2}$ , or 4 *d.* per lb.

### *Bond.*

A Term used amongst Workmen; for when they say, Make good *Bond*, they mean, fasten the two, or more Pieces of Timber well together, either with Tenanting and Morticing, or Dove-tailing, &c.

### *Botham.*

Is an Iron-monger's Term, which they use to signify a certain sort of *Nails*; for which see *Nails*, N. 2.

### *Boulder-Walls.*

1. *What.*] That is Walls made of round Flints, or Pebbles, which are found where the Sea hath a Beach cast up, and also at some other Places where there are plenty of Flints.

2. *The Method of building them.*] As I am inform'd by a Bricklayer that hath been used to such Work; 'tis their usual Way (if they can so fit it) for two to work upon it at a Time, one at one side of the Wall, the other at the other side, and one to be Right-handed, the other left; for two such fit best to work together in this sort of Work: They have a Hodd of Mortar pour'd down on their Work, and so they part it betwixt them, spreading it each toward himself, and then they lay their *Boulders*, or *Flints*. But he says, They always work with a very stiff Mortar, and had need to have a good Length of Work before them; for they work but one Course in Height at a Time; for, saith he, If we should do more, it would be apt to swell out at the Sides, and run down; and therefore we are forced to work continually in Length: He saith likewise, That if it chance to be misty Weather, 'tis very difficult to make the work stand.

3. *Price*] He tells me, That their Custom is to work by the Square, or 100 Foot; for which their usual Price is 12 *s.* for Workmanship only.



*Boults.*See *Bolts.**Boultin.*

In Architecture, is a Convex-moulding, that consists of an exact  $\frac{1}{4}$  of a Circle; being the Member next below the Plinth in *Tuscan* and *Dorick Capital.* See *Quarter Round.*

*Brace.*

In a Building, is a piece of Timber, which is framed in with Bevel Joints. Its use is to keep the Building from swerving, either this, or that way; they are sometimes call'd *Strutts*, viz. When they are fram'd in the *King-piece*, and principal *Rafters.*

*Brads.*

1. *What*] Are a sort of Nails without Heads, some Iron-mongers distinguish them by six Names, as followeth, viz.

2. *Joyners.*] Plain for hard Wood-wainscot, from 1 Inch to  $2\frac{1}{4}$  in Length.

3. *Batten.*] For soft Wood-wainscot, the Sorts are, 1 d. 2 d. 3 d. Ditto, large 4 d. Ditto large, 5 d. 6 d.

4. *Flooring.*] Plain for soft Wood, Joysts, the Sorts are 14, 15, 18, 19, 20, 21, 22, 23, 28, 32, and 36 lb. per M.

5. *Ditto strong.*] Fit for hard Joysts, the Sorts are 15, 18, 19, 24, and 32 lb. per M.

6. *Quarter-heads*] For soft Wood the Sorts are 10, 13, 15,

18, 19, 20, 22, 23, 28, and 32 lb. per M.

7. *Ditto strong.*] For hard Wood-Joysts, the Sorts are 14, 20, 34, 44, and 54 lb. per M.

N. B. All *Bill-brads*, alias *Quarter-heads*, are very fit for shallow Joysts that are subject to warp, or for Floors laid in Haste, or by unskilful Persons, because the Bill to the Head will hinder the Boards from starting from the Joysts, but doth not make so smooth Work as the plain Brads.

Lastly, As to the Prices of Brads, I shall set down but a few at present, which shall be these following, viz.

1. Of *Batten-brads*; in the Country they vulgarly call 'em *Joyners-brads*, the usual Price

of a M. of  $\left\{ \begin{array}{l} 2 \\ 1\frac{1}{2} \\ 1 \end{array} \right\}$  Inch is  $\left\{ \begin{array}{l} 20d. \\ 15 \\ 11 \end{array} \right\}$

2. Of *Quarter-heads*, or *Bill-brads* for soft Wood-floors, the usual Price

of a M. of  $\left\{ \begin{array}{l} 15 \\ 18 \end{array} \right\}$  lb. is  $\left\{ \begin{array}{l} 4s. 9d. \\ 5s. 6d. \end{array} \right\}$

*Break-in.*

Is a Term used by Carpenters, when they cut, (or rather break) a Hole in Brick-walls with their *Ripping-chissel.*

*Brest.*

A Term in Architecture, made use of by some to signify the same Member in a Column, that others call a *Thorus.*

A Brew.

*A Brew-house.*

None need be told what it is; but what I here mention it for, is because it is a necessary Part in all Dwelling-houses, especially in the Country: Now Sir Henry Wotton, in his *Elem. Arch.* saith, That all Offices that require Heat; as *Brew-houses*, *Bake houses*, *Wash-houses*, *Kitchens*, and the like, ought to be placed in the Meridional Part of the Building, if the Position of the House, in respect of the High-street or the like will admit of it; for it would be but an odd Contrivance, if a House stood on the North-side of a High-street, to place all the Offices in the Front of it; and it would be very ridiculous to pass thro' a Bake house, Brew-house, or Wash-house, into Rooms of Entertainment, in a Noble-man's, or Gentleman's House: And therefore we may see the old Proverb holds good still, *viz.* That there is no general Rule, without some Exception.

*Brest-summers.*

In a Timber-Building, are Pieces into which the Girders are framed, in all the Floors, but the Ground-floor (then they call it a Cell) and Garret-floor, (then it is call'd a Beam.) As to their Size, or Square, 'tis the same by the Act of Parliament with *Girders*, which see. You must note by the way, that I do not mean all the Pieces which have *Girders*

framed into them, (and are not in the Garret, or Ground-floor.) But I mean all such Pieces which are in the exterior Part of the Building, whether in the Front, Flanks, or Rear of the Building; for you must note the Pieces in the internal Part of the Building, into which the Girders are framed, are call'd *Summers*. The *Brest-summers* in London, Mr. Leybourn saith, are used to be measured by the Foot, running Measure; but whether he means only for the Work, or Timber, or both, I do not know: Now *Com. Comer* saith, That *Brest-summers*, in London, are valued by the solid Foot, if of Oak 3 s. per Foot; if Fir, 2 s.

*Bricks.*

I. *What.*] All know them to be a fictitious or artificial kind of Stone, of a reddish Colour; and as to their Form and Magnitude 'tis various, as also their Uses, of both which, and likewise their Consistence, we shall speak in their due Places.

II. *Whereof made*] I will first, tell you what *Pliny* saith of this Matter; he saith, That if you would have good *Bricks*, they must not be made of any Earth that is full of Sand or Gravel, nor of such as is gritty and stony, but of a grayish Marl, or whitish chalky Clay; or at least a reddish Earth. But in Case you are forced to use that which is sandy, be sure to make choice of that kind of Sand which is tough and

strong. The best Season (saith *Pliny*) is in the Spring, to make Bricks; for in the middle of the Summer, they are subject to crack and be full of Chinks. He further addeth, That the Lome, of which Bricks are made, ought to be well steeped, or soaked, and wrought with Water.

Mr. *Inco. in Mec. Ex.* saith, That Bricks are made of Earth, of which the whitish chalky Sort of Earth, and the reddish, are best.

At *Lunenburgh* in Saxony, they make them of a fat Earth, full of Allom.

Also there are good Bricks made at *Patane* in *Asia*, of a Pumice sort of Earth, which being dried, will swim in Water, and not sink.

The Ancients likewise made them of Earth which was sandy.

But here, in *England*, they are made for the most part of a yellowish colour'd fat Earth, somewhat reddish, [vulgarly call'd Lome] Mr. *Leybourn* saith, Bricks are made of a reddish Earth, which ought to be digged before Winter, but not made into Bricks till the Spring Season.

III. Of their Kinds, and Appellations.] The Sorts or Kinds of Bricks are as various as their Appellations, and their Appellations are attributed to them for Distinction sake (as the Names of all other Things are) thereby to be known. And these different Names were at first imposed upon them, according as the first Donors of these Names thought they did

see a Reason to bestow such Names on them, either from some Accident in their making, or from their Dimensions, or from their Form or Figure, or from Custom, or from Method in making, or from the Place where or by whom made, or from their Use, &c. Now these which derive their Names from Accident, are *Clinkers*, *Samel*, or *Sandal*: Those from their Dimensions, are the great and small (or Statute) and *Didoron*, *Tetradoron*, and *Pentadoron*: Those from their Form and Figure, are *Compass*, *Concave*, *Feather-edgy*, and *Triangular*; those from Custom, *Statute*, and *Cogging*. Those from the Method of making, are *Place*, and *Stock-bricks*. Those from the Place where, or by whom, are *Dutch*, or *Flemish*; and those from their Use, are *Butterfess*, or *Pilafter*, *Coping* and *Parving*. Of all which we shall treat in their Order. And,

I. *Compass-bricks*.] These are of a circular Form; their Use is for Steening of Walls; the which I was told by an ancient experienced Workman, he used to perform thus, *viz.* He having first laid a good Bed of Clay, for the Bottom, they paved it with Common or Statute bricks, only laid down on it, and well settled thereon; and then they began their Compass-work with the Compass bricks, and as they carried up their Courses, they ramm'd Clay in behind them (for they had Room left behind for the Purpose) which made all the Joynts of the Bricks pen close and tight together. He saith,

He



He hath done such Work, where the Walls have been but a little Depth in the Ground, and in a loose open Mold (where the Water hath been brought in by Concave-bricks) and hath known some which he did betwixt 20 and 30 Years ago to do very well.

As to the Price of these Bricks, he could not certainly tell me; but he thought, not much dearer than *common* or *Statute bricks*; but then he saith, He that hath them made for his Use, is commonly at the Charge of a Mold made according to the Circumference of his Wall.

2. *Concave, or hollow Bricks.*

These are like *Statute*, or *common Brick* on one Side, but on the other Side they have a Concavity, which is Semicylindrical. This Cavity is about  $\frac{3}{4}$  n. deep, and  $1\frac{1}{2}$  n. broad; so that when 2 of these Bricks are placed with their Hollows together, they are like a Pipe of  $1\frac{1}{2}$  Bore; they are usually about 12 n. long  $4\frac{1}{2}$  broad, and  $2\frac{1}{4}$  n. thick.

As to their laying them in the Ground, they generally do it in Clay; but an ancient Workman did inform me, That there must be Care taken, that there do not grow any Trees, Bushes or Brambles over these Bricks where they are laid to convey Water, nor yet very near them; for if there do, their Roots are apt to get in betwixt the Joynts of the Bricks, and there dilate themselves with fibrous Roots, which meet together like a Ball of Hair, in the Concavity, which will endanger the

stopping of it; and hinder the Current of Water. Now, if this Annoyance could be infallibly prevented, it would be the cheapest Way I know of to convey Water to a House; for 6 or 8 s. worth of Bricks would do about 6 Rods; and then suppose, that the Ditch digging, and laying the Bricks, the Charge of Clay, and ramming up again, should be as much more, viz. 6 or 8 s. for 6 Rods; according to this Proposal, 1 Rod would cost but 2 s. or 2 s. 8 d. and if the fore-cited Objection could be removed, this Work would last (I had almost said) for ever: It would not be the 6th Part of the Price of Lead pipes, and every whit as serviceable, if not to be prefer'd before them; because I do not suppose the Frosts would hurt this (tho' it often bursts Leaden-pipes), for put the Case the Water should be frozen up in them, the Ice would then, I do believe, by its Expansion, open the Joynts of the Bricks; but we may well suppose from the Nature of the Thing, that they will come together in their due Places when the Frost is gone by the natural Gravity of the Earth; for then there will be no solid Body betwixt the Joynts, to hinder the closing again of the Bricks.

Altho' *Alder pipes* be much cheaper than *Lead*; these Bricks, will not be much above (if they are at all) half the Price of *Alder pipes*.

As to the Price of these Bricks, I have known them sold in *Kent* for 4 s. per Hun-

dred, and in *Suffex* for 3 s. 200 of these Bricks at a Foot long will lay 6 Rods.

3. *Cogging-bricks,*] Are a kind of Bricks which are in use in some Parts of *Suffex* to make their *Toothing*, or Indented Work under the Copeing of Walls, built of great Bricks.

They are about 10 n. long, 4 n. broad, and  $2\frac{1}{4}$  n. thick, and are commonly sold at the Price of common Bricks.

In using them, they lay them on the top of the Wall, just under the *Coping bricks*, in an Oblique Position, so that one Corner, or Angle projects over about  $2\frac{1}{2}$  n. on one side, and the Opposite Diagonal Angle at the other, and projects as much over the other side.

4. *Copeing-bricks,*] Are necessary Concomitants to great Bricks for building Fence-walls, and are much used in some Parts of *Suffex*.

The Size and Form of these *Copeing-bricks*, are as follow, viz. They are about 12 n. square, and  $4\frac{1}{2}$  n. thick, having one flat or plain side, and 2 flat ends, the 2 edges and upper side, are all comprehended under one Curvelinear Surface, the 2 edges consisting of 2 *Boultings*, join'd by 2 *Casements*, or Hollows, to an *Astragal*, which is the top of the Brick, after this Form.

Their usual Price is from 12 to 16 s. per hundred.

5. *Dutch, or Flemish Bricks.*] I am informed by one, that they are  $6\frac{1}{4}$  n.  $2\frac{1}{2}$  broad, and  $1\frac{1}{4}$  n. thick; another tells me that they are 6 n. long

3 n. broad, and 1 n. thick, as for my own part, I never measured any of them.

They are of a yellowish Col.

The Paveing with these Bricks, is neater and stronger than common. They must be layed in Sand.

They are commonly used here in *England*, to pave Yards and Stables withal, and they make a good Pavement, and are very lasting, and being laid edge-ways, look handsomely, especially if laid Herring-bone fashion.

They are also used in Soap-boilers Fats, and in making of Cisterns.

If we allow  $\frac{1}{4}$  n. for the Joint, then 72 of those which are  $6\frac{1}{4}$  n. long and  $2\frac{1}{2}$  broad, will pave a Yard Square, but if they are set on edge, it will require 113 to pave a square Yard.

But of the other Size 6 n. long, 3 n. broad, and 1 n. thick, being laid the flat way, 63 will pave a square Yard, but being set edge-ways, it will require 165 to pave a Superficial Yard.

These Bricks are usually sold for 2 s. per Hundred at *London*.

6. *Clinkers,*] Are such Bricks as have much Nitre, or Saltpeter in them, which with the violence of the Fire runs and Glazes them.

7. *Didoron*] Were a sort of Bricks used by the Ancients, which were  $1\frac{1}{2}$  Foot long, or 2 Spans, [the word *Doron* being Greek for a Span, or the space betwixt the top of the Thumb, and little Finger extended] and 1 Foot broad: These were the smallest sort

of Bricks used by the Greeks about their private Buildings ; they having 2 larger Sizes for their publick Buildings, as you will find by the Sequel of the Discourse.

8. *Feather-edge,* ] Are a sort of Bricks formerly used in some parts of *Kent* and *Sussex*, they being of the same Size with *Statute-bricks*, but made thinner at one edge, than they are at the other, on purpose to open up their *Brick-pannels* (as they call'd them) in Timber Buildings, and they were usually sold amongst the *Statute-bricks* for that Purpose.

9. *Great Bricks.* ] They are a sort of Bricks that are 12 n. long. 6 n. broad, and 3 n. thick. The weight of one of those Bricks being examined, it was found to be about 15  $\text{lb}$ . so that 100 will weigh about 1500  $\text{lb}$ . and a Thousand 15000  $\text{lb}$ . which is 6 Tun 13 c. 3 q. 20  $\text{lb}$ . So that about 150 will be a Tun weight.

The use of these Bricks, is to build Fence-walls, together with *Pilaster*, or *Buttress-Bricks*,

and *Copeing Bricks* : I know one Place in *Sussex*, where they are much in use for that Purpose, These Walls are but 6 n. thick, only at the *Pilasters* they are 12 n. thick, and they usually set a *Pilaster* at every 10 Foot. I know a Wall of about 9 Foot high, of these sort of Bricks that stands very well, which hath been built near 30 Years : I am informed they are much cheaper than Brick, and  $\frac{1}{2}$  Walls, or 14 n. Walls of *Statute-bricks* ; of which see Walls N. IV.

These Bricks are usually sold at 2  $\text{l}$ . per Thousand, which is 4  $\text{s}$ . per Hundred.

10. *Paving-bricks.* ] They are by some call'd *Paving-Tiles*. Of these sort of Bricks, there are various Sizes, according to the Fancy of Workmen, and the Custom of Places. These, saith Mr. *Leybourn* are of several Sizes, viz. 6, 8, 10. and 12 n. square, in value from 6 to 20  $\text{s}$ . per Hundred, and if you would know how many of either sort will pave a Room, or the like,

Note that  $\left. \begin{array}{l} 36 \\ 21 \\ 13 \\ 9 \end{array} \right\}$  Bricks of  $\left. \begin{array}{l} 6 \\ 8 \\ 10 \\ 12 \end{array} \right\}$  Inches Square will pave a Square Yard.

In *Surry*. and several Counties of *England*, are made *Paving-Bricks* of 3 several Magnitudes, viz. 12 n. square, and  $1\frac{1}{2}$  n. thick, 10 n. square, and  $1\frac{1}{4}$  n. thick) and 8 n. square, and 1 n. thick, either of these

sorts being Polished, or rubbed with sharp Sand on the Surface, and well joyned, and the sides made equal by hewing them with a Brick-ax, and rubbing them on a rubbing Stone with sharp Sand, makes



an excellent Pavement, and very pleasing to the Eye, especially when laid Arras-ways.

I have seen Experiments made on some *Suffex Paving bricks*, which were  $6\frac{1}{2}$  n. square  $1\frac{3}{4}$  n. thick, 2 of them weighed 11  $\text{lb}$ . Tare, so that 100 of them would weigh 550  $\text{lb}$ . and a 1000 5500  $\text{lb}$ . and by consequence about 407 of them would weigh a Tun.

I have known some made of 9 n. square in *Suffex*, which use to be sold for about 8 s. per Hundred.

An experienced old Workman told me he had made *Paving Bricks* of Clay that were 15 n. square, which he was very much troubled to prevent their warping. These Bricks, when burnt, were of a pale red Colour, as were also some which he made 6 n. square of another sort of Clay, some Miles distant from the former.

He saith, that *Paving Bricks*, made [of *Lome*, have the reddest Colour, when burnt: But they ought to be made of better Earth than *common Bricks*, tho' they seldom are, by those that make them for Sale.

He saith also, that beside the goodness of the Earth in *Paving Bricks*, there ought to be a great deal of care taken in the drying of them, to prevent their warping, and also when they are dry, to take them and dress them smooth and strait, on that which is to be the upper Surface, and also to pare the edges strait, and a little under, making an acute Angle with the upper side, and to see that they be exactly square,

and then put them in the Kiln, and burn them.

The usual Price of 9, or 10 n. *Paving bricks* is from 8 to 12 s per 100 in the Country. I have known 10 n. ones from *Surry* brought by Water to Sea-port-towns in *Kent* and *Suffex*, and sold for 10 s per 100.

11. *Pantadoron*, ] Are a sort of *Bricks in use* formerly among the *Greeks*, being 3 f. 9 n long, and 1 f. broad, with these they did build their publick Edifices. See *Didoron*.

12. *Place bricks* ] This is a general name for all sorts of *Bricks* that are made after the insuing Method, from whence they derive their Name. Now Workmen tell me they are forced to have above one Method in making of *Bricks*, not for Fancy sake, but out of pure Necessity; the Reason of which proceeds from certain different Qualities, inherent in different Earths. But to proceed, *Place bricks*, and *Stock-bricks* are the 2 Kinds that receive their Names from the Method of their making.

*Place bricks* are generally made in the Eastern part of *Suffex*; so call'd, because there is a *Place* just by where they Strike (or Mold) their *Bricks*, which is a level smooth piece of Ground, prepared for the *Bearer-off* (who carries the *Bricks* from the *Striker*) to lay them singly down in Rows (which they call *Ricks*) as soon as they are Molded, and there they are left till they are a little dried, viz. Till they are stiff enough to be turned on their Edges, and *Drest* (that is, cut

cut off their Inequalities, and Raggedness) and when they are dry, they carry them to the *Hacks* (or Places where they row them up, like a Wall of 2 Bricks thick, with some small Intervals betwixt them, to admit the Wind and Air to dry them) when the *Hack* is fill'd they are covered with Straw on the top, till they are dry enough to be carried to the Kiln to be burnt.

13. *Pilaster, or Buttress bricks.*] These Bricks are of the same length, breadth, and thickness with the *great Bricks*, 6. 9. they differ from them only in this; they have a notch at one end, which is half the breadth of the *Brick*, in breadth, and also in the length; they are made in the same Mold with the *great Bricks*, only when they make *Pilaster Bricks*, they put into one corner of the Mold, a Cube of Wood of 3 n. square; which piece causes the notch in the *Bricks* when they are Molded.

The use of these *Bricks* is to Bond the Work at the *Pilaster* of *Fence walls*, built of *great Bricks*. These *Pilasters* are made a Foot square. *viz.* A Brick in length, or 2 Bricks in breadth, alternately throughout the whole height of the *Pilaster*. So that the *Pilaster* stands out 3 n. beyond the Surface of the Wall on each side.

14. *Samel, or Sandal-bricks,*] Are those which lie out most in a Kiln, or Clamp, where the Selt-peter is not digested for want of Heat, and these are very soft, and will soon moulder to dirt.

15. *Stock bricks,*] These differ not from *Place bricks* in Form; their difference lying conceal'd in the Quality of the Earth; they are made upon a Stock, *viz.* The Mould is put on a Stock, after the manner of Moulding, or Striking of Tiles, and when one Brick is Moulded, they lay it on a little piece of Board, a little longer than the Brick, and on that Brick they lay another piece of Board, like the first, and on that another Brick; after this manner, they lay 3 Bricks on one another, and so they continue to strike and place them on the Stage, as they do Tiles, till the Stage is full, and then they take each 3 successively, and carry them to the *Hacks*, and turn them down on their edges; so that there will be the thickness of a thin piece of Board betwixt each Brick. When the *Hack* is fill'd with one height of Bricks, from one end to the other, then they begin to set them up upon those, which were first laid on the *Hack*, by that time they will be little dried, and will bear the others; for they are Moulded of very stiff Earth; when they come to set a second or third, &c. Height, or Course they cater them a little, as they call it, to prevent their reeling: When the *Hack* is as high as they think fit, they cover them with Straw, as they do *Place-Bricks* till they are dry enough to burn. This way Workmen tell me is more trouble than the other way, *viz.* of making *Place bricks*, and for making and burning (besides the

the digging of the Earth) they have 6s. per 1000, which is 1 s. per 1000 more than they usually have for making of *Place-bricks*: But they are forced to make them so, because, if they lay them abroad in a Place to dry, as they do *Place-bricks*, the Nature of the Earth is such, that they will burst to pieces.

I very well remember an Instance of this Kind, that was told me by an ancient experienced maker of Bricks and Tiles; one that used to make Bricks about the Country (in *Kent* and *Sussex*) for Gentlemen: This Man was sent for to *Rumford* in *Essex* to make 100,000 of Bricks there for a Gentleman; he having procur'd his Materials and Utensils, went to Work (unadvisedly, not knowing the Quality of the Earth) and having struck about a 1000, when they had layen in the Place to dry, (according to the way of making *Place-bricks*) till about 10 a-Clock, when the Sun began to shine very hot, his whole 1000 of Bricks burst to pieces, so that he was forced to throw them all away, and then went to work again, and struck more; and then, before the Sun shone too hot, he *thackt* them, (i. e. cover'd them) over with Straw till the next Morning, and then he raked off the Straw with a Rake, and they did very well when they came to be set on the *Hack*; and when they were burnt, they were curious red Bricks, that would ring, when they were hit with any hard

Thing. They did always use to make *Stock-bricks* at this Place, before he found the way of making *Place-bricks* of this sort of Earth.

16. *Statute, small, or common Bricks*] Their Dimensions, viz. Of the Mold by the Statute, ought to be, as follows, viz. In length within 9 n. in Breadth  $4\frac{1}{2}$  n. and in Thickness  $2\frac{1}{4}$  n. Bricks made in such a Mold (the Earth being first well temper'd) dried, and burnt, they will be less and lighter, yet they shrink in Thickness but little; in Breadth less, and in their Length not discernable: The Weight of Bricks is uncertain, the Gravity of Earths being very different also; yet commonly one Brick will weigh about 5  $\frac{1}{2}$  lb. saith Mr. *Leybourn*, and will contain 90 Cubick Inches, and from some Molds 100. I once made an Observation on the Weight of *Statute Bricks*, I took 4, and measured them, and weighed them, I found each Brick to be 9 n. long,  $4\frac{1}{4}$  n. broad, and  $2\frac{1}{3}$  n. thick, and I found that the 4 weigh'd 22  $\frac{1}{2}$  lb. so that one did weigh  $5\frac{1}{2}$  lb. and 100 of these would weigh 550 lb. and a 1000, 5500 lb. and about 407 will be a Tun Weight. These were *Sussex Bricks*, of which they commonly reckon 500 to the Load, which Number of Bricks, according to this Proportion, will weigh about 24 Hundred and a half.

These Bricks are frequently used in *Paving* of Cellars, Wash-houses, Sinks, and Fire-hearths, and the like, 30 of these



these made, according to the Statute, will pave a Yard square, and 330 of them will pave a Square of 100 Foot. But you must Note, 'tis here meant, when the Bricks are laid the flat way, and not set on their Edges; for then it will take up near as many more.

But, I have it from Observation, That there must be 32 Bricks laid flat to pave a Yard, and 64 Bricks set an Edge to pave a Yard square.

I find also by Computation, from an Observation, That there must be 4600 Statute-bricks to make a superficial Statute-rod of Brick work, at a Brick and  $\frac{1}{2}$  thick, and by Consequence 1700 to the Square, and 155 to the superficial Yard; on a Wall of a  $1\frac{1}{2}$  Brick thick, V. P. Numb. VIII.

*Mortar, the Quantity to a Rod of Brick-work.*] Some allow more than others do, and the Truth is, they may well enough do so; for some Workmen have got a Habit of making larger Joints than others. Some usually allow about a Load of Lime, and two Load and a half of Sand (at 36 Bushels to the Load of Sand) to a Rod of Brick-work, or 4600 of Statute-bricks. And some others allow a Load and half a quarter of Lime, and 2 Load of Sand, i. e. two Bushels of Sand to one of Lime; and others will allow but  $1\frac{1}{2}$  Load of Sand to a Load and  $\frac{1}{3}$  of Lime.

*Price of these Statute or common Bricks.*] This is various; for in different Parts of the King-

dom, they commonly have a different Price, which is not all neither; for Bricks in the same Kiln, shall have a different Price sometimes, if the Maker of them be to lay them in at a greater Distance than usual; and as Mr. *Eyebourn* saith, Something ought to be considered, in respect to Workmens Wages, and the Price of Fuel to burn them with; but, saith he, I never knew them cheaper than 9 s. nor dearer than 18 s. per 1000, deliver'd in any part of London.

In some Parts of *Sussex* and *Kent*, I have known Statute, or Common bricks, sold for 16 s. per 1000, laid in a Mile or 2 distant from the Kiln, and at others for 20 s. At another Place in *Sussex*, they sell them at 25 s. per 1000, if they lay them in about 2 or 3 Miles distant, that within this 10 or 12 Years, they did sell them there for 20 s. per 1000; but since the late War began, the Iron-works in that part of the Country, have devour'd a great Quantity of their Wood, so that Fuel, of late Years, is got to be a fourth or more dearer than it did use to be; upon this Account they have now raised their Bricks to 25 s. per 1000.

Mr. *Wing* tells us, That in *Rutland* Bricks are but 12 s. per 1000 at the Kiln.

*The Price of making Statute-bricks*] In the Country, their usual Price is 6 d. per 1000 for the Molder, the Bearer off hath 4 d. and he that tempers the Earth ready for Use, hath 4 d. per 1000; and he that

that diggs it hath 6 *d* per 1000; for making the Earth ready (after it is digged, the digging being not reckon'd into the making), molding, bearing off, &c. and burning, their usual Price is 5 *s*. per 1000.

Mr. *Leybourn* tells us, That about *London*, they allow the Molder 4 *d*. 5 *d*. or 6 *d*. per 1000; and that Bricks made at Home will stand the Maker of them in (besides the value of the Earth) betwixt 5 and 6 *s*. per 1000. But I am sensible it will be more in *Kent* and *Sussex*, at least some Parts of those Countries.

17. *Tetradoron*.] An ancient sort of Greek Bricks, which were 3 Foot, or 4 Spans long; and one Foot broad, being one of their larger Size, with which they built their publick Buildings. See *Didoron*.

18. *Triangular Bricks*] This Form of Bricks is described by *Daniel Barbaro*, Patriarch of *Aquileia*, in his largest Edition of his Comment upon *Vitruvius*. He would have these Triangular Bricks consist of an equilateral Triangle, each Side to be a Foot, and the Thickness but an Inch and a half. This sort of Bricks he highly commends to us for many good Properties; as 1<sup>st</sup>. That they are commodious in the Management. 2<sup>dly</sup>. Of less Expence. 3<sup>dly</sup>. Of fairer Shew, adding much Beauty and Strength to the mural Angles, where they fall gracefully into an indented Work: So that Sir Henry Wotton wonders that we (in *England*) have not taken them into Use, being pro-

pounded by a Man of so good Authority in this Kind of Knowledge; but the Truth is, That all Nations are apt to start at Noveltries, and are very apt to be wedded to their own Ways and Methods.

IV. *Of the Method of Making*.] Of this see *Stock and Place-Bricks*. Mr. *Worlidge*, in his *Syst. Agricul.* is for exciting Brick-makers to try their Skill, in making a Composition of Clay and Sand, of which they may form in Molds, *Window frames* for Houses, of different Forms and Magnitudes, and also *Chimney-pieces*, and *Frames for Doors*, &c. in several Pieces made in Molds, that when they are burnt, they may be set together with a fine red Cement, and seem to be as one intire Piece; whereby may be imitated all manner of Stone-work now used in Building, and it will very well supply its Defect where Stones are wanting, or scarce and dear. and also save very much Timber, which is now used in Brick-Buildings, and appear much more compleat and beautiful, and be of greater Strength, and more durable for lasting, than Timber, or ordinary Brick; and one would think it should be very feasible, as we may perceive by the *Earthen pipes* made fine, thin, and durable, to carry Water under Ground at *Portsmouth* in *Hampshire*, and by the *Earthen-backs*, and *Grates* for *Chimneys*, made by Sir *John Winter*, formerly at *Charing-Cross*, of a great Bigness and Thickness, which are evident, and

and sufficient Demonstrations of the Possibility of making Work fine, thin, and light, for *Tiles*, either plain or curved, and for making of greater work in Moulds, and through burning of them, for *Doors*, *Windows*, and *Chimney-frames*, &c

This, saith he, is one of the most feasible, and beneficial Operations that I know in *England* to be neglected.

It is really my Thoughts, much might be done concerning making of *Chimney pieces*, *Stone-mouldings*, and *Architraves* *Doors*, and *Windows*, and *Architraves* or *Fascia's* for Fronts of Buildings. &c. if that Men of this Profession would but set their Minds to work, to contrive some good Composition of Earth, and a way to manage it well in Molding, Burning, &c. But (the more is the Pity) Men of this Profession are like the Materials they work upon, viz. heavy and lumpish.

It might be made a Query whether a Composition of Earth, something like to common Crockers Earth, would not in some Measure answer the Design, since it is apparent, That whatever Form the Crockers are pleased to put their Earth into, it retains it after drying and burning, altho' Crocks, and such like Things are formed very thin: Now, suppose that *Chimney pieces*, or the like, were made in Molds, and dried and burnt, when they came to be set up, if they were not thought smooth enough, they might be

polished with sharp Sand and Water, or a piece of sharp Stone, and Water. Or were there but Care taken of such Things as these (which are for Ornament, as well as Use) when they were half dry, or more in the Air, then to let them be polished over with an Instrument for the Purpose, either of Copper, or Iron, or some hard Body, and then leave them till they were dry enough to burn; 'tis my Thoughts such would not want much polishing afterwards.

And let me further add, I am very apt to think, that ingenious Men of this Profession, might make very handsome and beautiful *Chimney-pieces*, *Stone Moldings* for *Doors*, &c. fit for Noblemen's Houses, and all others that would be at the Charge.

What I would here propose is by way of Glazing, as Potters do their fine Earthen Ware, either white, or any other Colour, or it might be vein'd in Imitation of Marble, or be painted and anneal'd with Figures of various Colours, or some History, Perspective, or the like, which would be much cheaper, if not also as durable, and every whit as beautiful as Marble it self. And, had I Time, and Room in this small Treatise, I could here have added the Methods of Glazing, and painting of various Colours to have encouraged the Lovers of such Arts, to set their Heads to work at it. So that I am inclined to think, we rather want Art or Ingenuity, and Industry, than Materials



terials to satisfy our greatest Curiosity in Building. 'Tis not the Baseness of our *English* Materials, but want of Skill, and Diligence in managing them, that make our *English* Buildings in the least Measure inferiour to any Foreign ones: I well remember an Instance of this Nature, which was an Observation of an *English* Ambassadour, which was this, *viz.* That we ought not to be discouraged with our ignoble Materials for Building, which we use in *England*, in comparison of the Marbles of *Asia*, and *Numidia*: For, saith he, I have often at *Venice* viewed with much Pleasure, an Antiporch, after the *Greek* Manner, erected by *Andreas Palladio* upon 8 Columns of the Roman Order, the Backs of Stone without Pedestals, the Shafts or Bodies of mere Brick,  $3\frac{1}{2}$  Foot in Diameter below, and consequently 35 Foot high, as himself hath described them in his second Book, than which, saith the Ambassadour, mine Eyes never yet beheld any Columns more stately of Stone, or Marble; for the Bricks were first formed in a Circular Mold, and were cut before they were burnt, into 4 Quarters, or Quadrants, or more than 4 Parts; for he could not certainly tell how many the sides were; afterwards in laying, jointed so close and nicely, and the Points concenter'd so exactly, that the Pillars appear one entire Piece.

And therefore I would not have *English* Men be disheartened, that we do here want

those firm and solid Stones, which Nature hath furnished other Nations with; but rather to exercise their Ingenuity, to supply our selves by Art, with those things which Providence hath thought fit we should want, unless we would do so. And if we can but bring such things to Perfection which have been here hinted at, it may hereafter redound to the Honour of the *English* Nation. I mention these things here purely to stir up inquisitive Persons, to endeavour after an Improvement of such Arts, and that they might not be so stupid, as to suppose, That either they, or their Fore-fathers, were arrived at the *ne plus ultra* of this, or any other Art; and to persuade them, (if possible) to throw off that slothful and dangerous Principle, of resting contented with being possessed with the same degree of Knowledge, which our Predecessors had before us; and of thinking that they have skill enough, because the barbarous part of the World, doth not practice so much as they: But I would very fain, (if it lay in my Power) prevail upon Mechanicks, to see what Improvements in their Professions they can bring forth

V. Of the Method of Burning Bricks, &c.] All Bricks that are burnt, are burnt either in Kilns or Clamps

An experienced old Brickburner, or Maker, tells me, That his (and some other experienced Brickburners) Method in burning of Bricks and Tiles,

*Tiles*, was thus, *viz.* The Kiln being set, and cover'd with Pieces of Bricks, they first put in some Cord, (or great) Wood to dry the Ware, with a gentle, even Heat or Fire; which Fire they continue till the Ware is pretty dry; which they know by observing the Reek which ascends out at the Top of the Kiln; for when it is changed from a thick Vapour, betwixt a whitish and darkish Colour, to a kind of a black Smoke, which is more transparent than the Vapour which first arose from the Kiln; after this blackish Smoke hath ascended for some Time they put in no more great Wood, but proceed to make ready for burning; which is performed, either with Spray, Bush, Furz, Heath, Brake, or Fern-Faggots; but before they put in any Faggots, they damm up the Mouth of the Kiln (or Mouths; for some Kilns have more than one Mouth) with that *Shinlog*, as they call it (which is pieces of Bricks piled upon each other, with wet Brick-Earth, instead of Mortar.) This *Shinlog* they make so high, that there is but just room above it to thrust in a Faggot, *viz.* Betwixt a  $\frac{1}{2}$  Foot and 2 Foot; for the whole Height of the Mouth is about 3 Foot. The Mouth being thus *Shinlog'd*, they proceed to put in Faggots, till they make the Kiln and its Arches look white with Heat, and the Fire begins to appear at the Top of the Kiln, and the Kiln and Arches below begin to change from white to a greyish Colour;

then he saith, they slacken the Fire for some Time, *viz.* for about  $\frac{1}{2}$  an Hour, or an Hour, as they think fit, that the Fire, or Heat, may ascend to the Top of the Kiln. by the Motion of the Air in at the Mouth, and also that the lower Ware may settle and cool, and not be burnt more than that above it. Thus they continue to do, heating and slacking alternately, till the Ware be thorough burnt, which it will be (he saith) in about 48 Hours: According to this Method, he saith he hath burnt many Kilns of Ware so equally, that those on the Top were almost as hard as those below (if not altogether.) He told me he had burnt several Kilns of *Tiles* and *Bricks* together, *viz.* About 3000 Bricks, and 10 or 11,000 of Tiles, and hath not had above 50 waste, broken, and *Sandal Tiles* in all (which I will assure you is very Rare); whereas, saith he, such Brick-burners as continue their Fire without any Intermission; make their lower Ware extream hard; and that on the Top of Samel-bricks, or Tiles; nay, and which is worse, they make the lower Ones run so with the excessive Heat, that they are almost united in one entire Body; so that they are forced to get them out with Wringers (or Iron-bars) and each *Bolt* of *Tiles* shall be one entire Mass, (which I have observed my self.)

And then, as to cooling of Kilns of Ware, some unwise Burners, as soon as the Ware

is burnt, they immediately stop up the rest of the Mouth of the Kiln, which was left open above the *Shinlog*, by which Means it is long in cooling; so that they (*viz* Such indiscreet Burners) are commonly a Fortnight, or almost three Weeks, in Setting, Burning, and Cooling, and drawing of a Kiln of Ware. Whereas, saith he, I have Set, Burnt, Cool'd, and Drawn a Kiln a Week for several Weeks together: But then I never stopped up the Rest of the Kilns Mouths above the *Shinlog*, but left it open for the Air to pass in and cool the Ware.

He also told me, That 600 of Faggots would burn a Kiln of 10 or 11,000 of *Statute-bricks*. Mr. *Wing* informs us, That a Childron of Coals will burn about 4,200 of Bricks.

I have been informed, that their Method of burning *Bricks* in *Clamps*, is something after this Manner, *viz*. They build their *Clamps* of the *Bricks* that are to be burnt something like the Method of Building the Arches in Kilns, *viz*. with a Vacancy betwixt each Bricks Breadth, &c for the Fire to ascend by; but with this Difference, that instead of Arching, they truss, or span it over, by making the Bricks project over, one beyond the other, on both sides the Place, for the Wood and Coal to lie in, till they meet, and are bonded by the Bricks at the Top, which closes up the Arch. This Place for the Fuel, they carry up strait at both Sides,

or which is the same Thing, upright at both Sides, till it is about 3 Foot high, and then they begin to lay the *Bricks*, projecting over inwards, till they meet in the middle, which they will do in about 3 or 4 Course of Bricks in Heighth, the Width of the Mouth being but about two and  $\frac{1}{2}$  half Foot. Above this Arch they lay the Bricks in the Order they do in a Kiln, to 8 or 10 Foot in Heighth, according as the *Clamp* is to be in Bigness; for they usually burn a great many Thousands in a *Clamp* at a Time, so that they build them 8 or 10 Foot above the Arching.

But you must further Note, That after they have begun to make the Place (or Places) to receive the Fuel, before it is closed up at the Top, it is almost filled with Wood, and on that they lay a Thickness of Sea-Coal, and then they over span the Arch; but they strew Sea-coal all over the *Clamp*, from bottom to top, *viz*. betwixt all the Rows of *Bricks*; for they are not laid Contingent in their Vertical Rows; and one Course of Bricks is laid one way, and the other another; so that there is small Interstices betwixt all the Bricks, for the Coal to be strewed into, from the bottom to the top: This being done, they fire the Wood, and that fires the Coal; the which, when 'tis all burnt out, they conclude the *Clamp* of Bricks to be burnt.

VI. Of the Quantity of Earth to make a Thousand of Bricks, &c ]

I am



I am inform'd that 1 Load of Lome (a Load being 12 Bushels) will make about 200 of *Statute-Bricks*, and then by Consequence, 5 Load will make a 1000. Also that 19 Load of Lome will make 1600 of great Bricks, and 12 will be sufficient for a 1000 of the same.

VII. *Of the Choice of Bricks, &c.]* *Pliny* advises in making choice of Bricks for Building, to be sure (if possible) to procure such as are two Years old at least. There are commonly, and general in all Kilns and Clamps, three Degrees of Bricks, in Goodness, *viz.* The first and best sort are those which lie next the Fire, (*viz.* Those are best for lasting) and have, as it were, a Gloss on them, which proceeds from the Salt-peter, which is inherent in them, and which by the Violence of the Fire, runs and glazes them; these are call'd *Clinkers*.

The second and most general sort for Building, are those which lie next in the Kiln, or Clamp, to those before mentioned.

The third and worst sort, are those which lie on the out-sides of the Kilns and Clamps, where the Salt-peter is not digested for want of due Heat; and these, when they come to be exposed to the Weather for some Time, will moulder away like Dirt; and these Workmen call *Samel* or *Sandal-bricks*. 'Tis an Observation, That whilst Bricks are burning, those on the windy Side of a Clamp, are the worst of all.

VIII. *Of Observables in Buying and Laying Bricks, &c.]* And first, of Buying; the last Number will direct any Master or Workman (that doth not understand it) how to choose good Bricks; and in the 16 Section of Bricks, *viz.* Under the Head *Statute-bricks*, you have some Directions, as to the Number of Bricks; but you must Note, 'Tis impossible to be certain (to know) how many will be wanting exactly; because in such Cases there can be no infallible way discovered; and that for several Reasons, *viz.* (altho' the *Bricks* were all made in the same Mould, and burnt in the same Clamp, or Kiln) the Bricklayers Hand may vary in laying his Mortar. Secondly, Many Bricks warp in burning, (and the Seller will bring you some such, in Spight of all your Care in chusing.) Thirdly, Some miscarry, and are spoiled in every Carriage. Fourthly, The Tally, or Tale, is, for the most part, too little, if not well looked to. And besides all these Uncertainties, when Bricks are dear, and Lime cheap (which sometimes happens so) if you put your Work out by the Great, or by Measure, and he is to find Materials that doth the Work, the Workman, without good looking after, will certainly use the more Mortar, and make very great Joints; which is a Defect in any Building.

Secondly, Of laying Bricks, which is a Thing of no small Consequence in a Building; for the well-working, and

bonding of Brick-work (or as some Workmen call it, breaking of Joint,) conduces very much to its Strength; I think therefore it may not be amiss to add some particular Notes about it, which experienced Workmen have thought convenient to commend to the Publick, as well worth their Observation.

*First*, Let me commend to your Care, to be sure to procure good strong Mortar; of which see *Mortar*.

*Secondly*, If your *Bricks* are laid in Winter, let them be kept and laid as dry as possible; if they are laid in Summer-time, it will quit cost to imploy Boys to wet them; for they will unite with the Mortar much better, than if they were laid dry, and will make the Work much stronger. But perhaps it may be well objected, That it will be too much trouble to wet all the *Bricks* (by dipping them in Water) if the Building be large; and besides, it makes the Workmens Fingers sore. To prevent these Inconveniencies, there may be Water throw'd on each Course of *Bricks* after they are laid, as I am inform'd was done at the Building of *Physicians College* in *Warwick Lane*, by Order of the Surveyor, the ingenious Mr. Robert Hooke.

*Thirdly*, If your *Bricks* are laid in the Summer-time, be sure to cover them, to prevent their drying too fast; for if the Mortar dry too hastily, it doth not cement so firmly to the *Bricks*, as when it dries gradually.

*Fourthly*, If *Bricks* are laid in Winter, be sure to cover them very well, to protect them from Rain, Snow, and Frost, which last is a mortal Enemy to all Mortar, especially to all such as have taken Wet but just before the Frost assaults it.

*Fifthly*, Let Care be taken that *Bricks* be not laid Joynt on Joynt, in the middle of *Walls*, as seldom as may be, but let there be good Bond made there, as well as on the Out-sides; for some Workmen, in working Brick and  $\frac{1}{2}$  Wall, lay the Header on one side of the *Wall*, perpendicular on the Header on the other side of the *Wall*, and so all along thro' the whole Course, which indeed necessarily follows, from the unadvised setting up of the Quoin at a Tothing; for 'tis common to Tooth in the Stretching-course two Inches, with the Stretcher only, and the Header on the other Side to be perpendicular over the Header on this Side, which causes the Headers to lie Joynt in Joynt in the middle of the *Work*.

Whereas, if the Header on one Side of the *Wall* were toothed as much as the Stretcher on the other Side, it would be a stronger Tothing, and the Joynts of the Headers of one Side, would be in the middle of the Headers of the Course they lie upon on the other Side.

All that can be pretended to excuse this ill Custom of working thus, is this, That the Header will not hang 2 n. over the *Bricks* underneath it.

This

This indeed I do grant to be an Objection, but not so great, but that it may be removed, and that without much Difficulty, *viz.* thus, By having a piece of Wood of the Thickness of a Course of *Bricks*, and 2 n. broad, and lay it on the last Tooothing Course to bear it, or a Brick-bat put upon the last Tooothing, will bear it till the next Quoin is set upon it, and then the Bat may be taken away.

*Sixthly.* The same Inconveniency happens at an upright Quoin in a Brick and  $\frac{1}{2}$  Wall, where 'tis usual to lay a Closer next the Header, on both sides of the Wall, and in so doing, 'tis Joynt in Joynt all the Length of the Wall, except by chance a 3 quarters Bat happen to be laid.

To prevent which Inconveniency, and thereby make the Wall much firmer, lay a Closer on one Side, and none on the other Side; but lay a 3 quarter Bat on the Quoin in the Stretching-course, and in the Heading-course adjoyn an Header next to the Header at the Quoin.

Also in two Brick-walls, it is the best way in Stretching Courses, wherein they lay stretching on both Sides the Walls, next the Line so also to lay stretching in the middle of the Wall, and Closers next to each Stretching-course that lies next the Line.

A Bricklayer and his Labourer (having all his Materials ready) will lay in a Day about 1000 Bricks, in whole Work on a solid Plain, and

some very expeditious Bricklayers, will lay 12 or 1500.

[X. Of Facing Timber buildings with Bricks.] In some Places this Method of Facing Timber-building is in Use, but I think it should be call'd Caseing; for 'tis covered all over on the Out-side with Brick, so that no Timber is to be seen. The which is performed after this Manner. *viz.* All betwixt the Timber the Wall is a Brick a Length thick (or 9 n. Wall of Brick, but against the Timber, the Wall of Bricks is but  $4\frac{1}{2}$  n. or half a Brick, or the Breadth of a Brick thick (beside the Timber.)

But this Method is not approved of by able Workmen, because the Mortar doth so extreemly corrode and decay the Timber.

For I remember an experienced Bricklayer told me, That he did pull down such Work at *Eridge-place* (which is one of my Lord of *Abergaveny's* Country-Seats) and the Timber was extreemly corroded, and eaten with the Mortar.

### Bricklayers.

1. Work ] The Bricklayers-work in the City is of various Kinds, *viz.* Tying, Walling, Chimney-work and Paving with Bricks and Tiles. But in the Country 'tis common for the Bricklayer's Trade to comprehend the Masons and Plaisterers also. All which Particulars will render it too large to be comprehended under the general Head of Bricklayer's work; I therefore think it will be



more convenient to rank it | *Bill of making.*] A Bricklayer's Bill may be Composed after this Method.  
 under its particular Branches, or Parts, *viz.* *Walling, Tiling, Chimney-work, Paving, &c.*

*Mr. Robert Rich, of Rochester, his Bill of Materials, had of, and Work done by Benjamin Bennet, Bricklayer, October 5. 1724.*

	<i>l.</i>	<i>s.</i>	<i>d.</i>
For 12 Thousand of Bricks at 15 <i>s.</i> per M. ———	09	00	00
For 8 Thousand of Tiles at 20 <i>s.</i> per M. ———	08	00	00
For 17 Hundred of Lime at 14 <i>s.</i> per C. ———	11	18	00
For 15 Load of Sand at 2 <i>s.</i> 6 <i>d.</i> per L. ———	02	05	00
For 10 Hundred of 9 n. Paving-tiles at 10 <i>s.</i> 6 <i>d.</i> } per Hundred	05	05	00
For 40 Ridge-tiles at 1 $\frac{3}{4}$ <i>d.</i> per Piece. ———	00	05	10
For 3 Weeks and 3 Days Work for my self, at } 3 <i>s.</i> per diem.	03	03	00
For 27 $\frac{1}{2}$ Days for my Man at 2 <i>s.</i> 6 <i>d.</i> per Day. ———	03	08	09
For a Labourer 27 $\frac{1}{2}$ Days at 1 <i>s.</i> 8 <i>d.</i> per Day. ———	02	05	10
<hr/>			
Sum Total is —	45	11	05

But Note, if Bricklayers do not work by the Day, then they use a different Method in Writing their *Bills*; for then they either take their Work by the Great, *viz.* To do all, and find all belonging to Bricklayers Work, or else he is to do it by Measure, and to find all Materials and Work, at such a Price by the Rod for *Walling*, by the Square for *Tiling*, and by the Yard for *Paving, &c.* But if he finds no Materials, he may also work by Measure, and then the Bill must be made after this manner, *viz.* For so many Rods of *Walling*, at so much (according to their Agreement) per Rod, &c.

Note also, That in some Buildings *Chimneys* are put out to the Bricklayer by the Hearth, either only to build, or to find

Materials also, and then the Bill is made according to the Agreement.

There are some other things which come into a *Bricklayer's Bill*, *viz.* All kind of ornamental Work in Brick, which is commonly set down, or rated at so much per Foot, or so much per Piece, except a good Rate be allowed by the Rod, &c. Or there be a Sum of Money over and above the Price, or Value of the Rod-work allowed, and so the Ornamental Work be included in it. By Ornamental Work, is to be understood, streight, or circular *Arches*, over Windows, or Doors; *Fascia's*, with, or without Moldings, *Architraves*, round Windows, or rubbed *Returns*, *Friezes*, *Cornices* of all sorts, *Water-Tables* wrought, and

and *Water courses* : All which are valued by the Foot running Measure ; to which I must add *Base-mouldings*, and *Plinths*, and the *Splaying* of the *Jambs* of Windows and Doors on the inside of Buildings. Also *Pilaſters*, *Peers*, *Pediments*, *Grotto's*, and *Ruſtick Quoins*. Theſe five laſt mentioned, are valued at ſo much *per Piece*, according to the largeneſs, and goodneſs of the Work and Materials ; and thus all *Ornamental Work*, ought to be valued. By the word *Ornamental Work*, is to be underſtood in *Bricklayers Work* ; all kind of *Brick Work*, that is hewed with an *Ax*, or rubbed on a *Rubbing-ſtone*, or of *Stone* wrought with *Chiffels*, or rubbed with *Stones*, or *Cards*, all ſuch is *Ornamental Work*, and ought to be paid for, beſides the *Rod-work*, &c. I ſhall now proceed to ſpeak of that Part of *Bricklayer's work*, which is called

### *Brick Work.*

1. *Some Notes about Meaſuring, &c.*] Sometimes *Brick-walls* are wrought 2 n. thicker than the reſt of the Work, part of the way, which 2 n. ſerveth for a *Water-table* to the Wall which is uſually ſet off about two Foot above the Ground ; and therefore the *Brick-work* may be meaſured at the ſame Thickneſs that is above the *Water-table*, and then the 2 n. Work may be thus added to it.

Suppoſe a Wall 20 Foot in length, and 2 Bricks thick above the *Water-table*.

After the Dimensions of the Wall is taken (from the bottom, to the height it is to be taken at 2 Bricks) then add 20 Foot in length by the height of the 2 n. Work, *viz.* From the bottom to the ſetting off, or *Water table*, which being halſed, is ſo much 4 n. Work, and then reduce it to a Brick and a  $\frac{1}{2}$  Work.

As for *Ornamental Work*, we need not to mention that here, it being mentioned above.

2. The Meaſuring of *Gable-ends* in *Brick work*, is done after the ſame Method that Carpenters meaſure Gables, (only this is reduced into *Rod-work*) See *Gable end*, N. 2.

3. Be ſure to obſerve, in taking Dimensions of Walls that joyn to an Angle, that the length of one Wall be taken at the out-ſide of the Angle, and the others length to the in-ſide of the Angle.

4. If there be a *Gable end* to meaſure, and the width of the Houſe be given (or known) which is the *Base* of the *Gable-end*, and the length of the *Perpendicular* is required, there is a brief way uſed amongſt Meaſurers to find it. To make it the plainer, I will propoſe an Example, *viz.* Suppoſe the *Base* of the *Gable* be 24 f and the length of the *Perpendicular* is required ; take the length of the *Rafter* (which will be) 18 f. to which add  $\frac{1}{2}$  it ſelf, *viz.* 9 Foot, it makes 27, the  $\frac{1}{2}$  of it is 13 f. 6 n. the length of the *Perpendicular*. But tho' this way be commonly practiſed, it is not exact, for it makes the *Perpendicular* a little too much : This you muſt note is

practised for Roofs, that are  $\frac{3}{4}$  pitch; and therefore I would not advise any to make use of this Method in any other Pitch. Now I am upon discoursing of *Gable-ends*, I will here add two exact Ways of finding the Perpendicular; the first shall be by Proportion. thus, *viz.* As 30 to 22 35, so is the length of the Rafter to the Perpendicular required; or subtract the Square of  $\frac{1}{2}$  the Base, or  $\frac{1}{2}$  width of the House, from the Square of the Rafter's length, there will remain a Number, whose square Root is the length of the Perpendicular.

5. In taking out the Deductions for the Doors, and Windows, &c. if any happen in Brick-work, of  $2\frac{1}{2}$  Bricks thick, or in 2 Bricks thick then add  $\frac{2}{3}$  to the length, for those in the  $2\frac{1}{2}$  Br. work, and  $\frac{1}{3}$  to the lengths of Doors, or Windows, in 2 Br. (or it may be  $\frac{2}{3}$  or  $\frac{1}{3}$  to the breadth, and not the length, according as which will be soonest divided) and then the lengths and breadths being multiplied one into the other, the Product is the proper Deductions in Brick  $\frac{1}{2}$  work without any further trouble; and it will neither wrong Master nor Workman.

6. Our sixth Note should have been on *Chimneys*, but of that see *Chimneys*.

I did also intend (when I began this Head of *Brick-work*) to have inserted here several other things appertaining to *Brick-work*, *viz.* The Method of Measuring, Reducing to Standard-thickness, finding the va-

lue of any odd Foot. Price of this Work, in diverse Parts of the Kingdom, of laying Foundations of Walls, &c. But finding of B. will be a very copious Letter, I shall refer it to Walls of Brick, which see N. IV.

### *Brick-Walls.*

See *Walls*, N. IV.

### *Bridge.*

Of Timber to Build over any Brook, Gill, or small River, if it do not exceed 40 or 50 Foot in length, and that without setting any of the Timber down in the Water, it is a cheap and safe way of building a *Bridge* of that length.

To perform this piece of Art, the Timber must be so joynted, as to resemble (in some measure) an Arch of Stone, or Brick, the Joynts ought to be well made, and shut together strongly with Cramps and Dogs of Iron. This Bridge must be made to rest upon two strong firm Pillars of Wood, at either end of the Bridge, both being well propped with Spurs or Braces; there must be two good Buttresses of Brick for these wooden Pillars, and Spurs to stand in, that they may not give way, or slip; this being done, the Bridge may be Planked over, and Graveled, and it will last a long time. This hath been already practised, saith Sir Hugh Plat.

*Bring-up.*



*Bring-up.*

'Tis a Term used among Workmen, especially Carpenters, when they discourse with Bricklayers, and then they say *Bring-up* the Foundation so high, *Bring up* such a Wall, *Bring up* the Chimneys, &c. Which is as much as to say, build the Foundation so high, build the Wall, build the Chimneys, &c.

*Broad-stone.*

1. *What.*] 'Tis the same with Free-stone, only this is so called, because they are raised broad and thin out of the Quarries, viz. not above 2 or 3 Inches in thickness.

2. *Use.*] The Use of these sort of Free stones, which are called *Broad stones*, is for Paving of Yards, and Passages, and before Shop-doors and Stalls, &c.

3. *Price.*] If they are promiscuous breadths and lengths, then the usual Price for the Stone fitting, and laying in Mortar, from 6 to 8 *d.* per Foot square, or from 4 *s.* to 6 *s.* per Superficial Yard.

But some of these Stones are cut into perfect Squares, as Paving-tiles are, but much larger, as 18, 20, and 24 Inches square, or more, but those, as they are neater, so they are dearer; some Paving with these, being worth 1 *s.* per Foot, but 'tis worth 15 or 16 *d.* per Foot, if the Stones be good and well polished, as they ought to be, for Kitchens, Dairy-houses, and neat private Places.

*Building.*

I. *Considerations about it.*] Every Man that is disposed to *Build*, either out of Choice, or thro' Necessity, should first sit down, and seriously consider of the whole Design, viz. Both of the Manner and Method, as well as the Charge and Expence. And I am satisfied, that Premeditation is a very necessary Maxim, or Preliminary to Building, because we have it from no less Person than our Blessed SAVIOUR himself, who saith in *Luke* 14. 18. *Which of you intending to build a Tower, sitteth not down first, and counteth the cost, whether he have sufficient to finish it?* The Reason and Necessity of it follows, v. 29. and 30. *Last haply after he hath laid the Foundation, and is not able to finish it, all that behold it begin to mock him, saying, This Man began to build, and was not able to finish.*

And let me perswade all Builders, to make choice of such Surveyors, and Workmen, as understand what they are going about, before they begin the Work, viz. Such as be Masters of what they pretend to, as a Surveyor that understands how to give the Draught, or Model of a Design; so as that when it is erected it may answer to the end, which is to Build well; and a Building is said to be well done, when it is so contrived, and perfected, that it is possess of the following Qualifications, viz. Accommodation, or Usefulness, Proportion, (Beauty, or Handsomeness

fomeness) and Uniformity in its Parts; Firmness with Duration. For that Fabrick cannot be accounted perfect, which is useful only for but a short space of Time, or not convenient for a longer; and hath not also Decency and Beauty, which is derived from Proportion and Uniformity: I would therefore (if it lay in my Power) endeavour to perswade all Builders to procure such Surveyors, and Workmen (if possible to be procured in the Country, where the Builder lives) as understood the Theory and Practice of Architecture, and also of Arithmetick, (which is the Ground of all Arts) without the Knowledge of these two, the best Mechanick, or Handicraft Man will be but an imperfect Builder, and subject to fall into many Errors, and be guilty of committing many Faults, and making many Mistakes. For Gentlemen, and others that are Builders, are too often prevailed upon, and perswaded by such Workmen, as are wedded to their own Wits (tho' they were never vers'd in the Grounds of Architecture, and were wholly ignorant of the meaning of Proportion, Uniformity, and Accommodation in Building) and tied to their own odd sort of irregular old way; which is no better than a deformed Custom, and such Men will not (for the most part) be prevailed on, or perswaded to a more compleat way, though it be much more beautiful, and regular, and also with less Ma-

terials, and cheaper, and more convenient than the other; and all the Reason they will, or can render for it, is, because it is New to them, and they were never accustomed to such a way of working; neither do they understand it: For say they, Our Fore-fathers did it not before us, which is a very prevailing Argument with some that know no better; yet perhaps the Master-Builder is willing to bestow Expence enough on his House, &c. to Enrich, and Adorn it; but his Workmen, thro' ignorance perform it with very little Skill or Art. But I do think none are so Senseless and Stupid, as to deny, that it is better to erect such a Fabrick, that shall be more useful and necessary, and also more pleasing, both to wise Men, and Fools, than that (tho' done by the same Cost and Expences) which will only please an ignorant Workman or two, (who are possest with an over-weening Affectation of their own Skill, which at best is but conceited Blundering or Unskilfulness) and perhaps it may also satisfy some few others, that do not understand the Methods, and Maxims of Architecture, and so were easily prevailed upon by these absurd Workmen, and Proselyted to be of their Opinion, be it right or wrong. Having thus laid down some Considerations about Building, I shall next proceed to speak of certain

II. *Aphorisms necessary to be known, and observed in Building.*  
Dr. Fuller, Prebend of Sarum, faith,

faith, He that alters an old House, is tyed as a Translator to the Original, and is confined to the Fancy of the first Builder. Such a Man were unwise to pull down a good old Building, to erect (purchase) a worse new one. But those that raise a new House from the Ground, are Blame-worthy, if they make it not handsome and useful, seeing to them Method and Confusion are both of a Price. In Building, faith he, we must respect *Situation, Contrivance, Receipt, Strength and Beauty*, to which I will add *Form or Figure*.

1. OF *Situation*] The Precepts belonging to *Situation*, faith Sir H. W. do either concern the total Posture, or Position (as I may term it) or *placing* of the *Parts*: The first of these is usually reckon'd by *Architects*, as part of their Profession, but the Truth is, it is borrowed from other Parts of *Learning*, there being betwixt *Arts* and *Sciences* (as well as betwixt Men) a kind of Society. and Communication of *Principles*.

For some of them are purely *Physical*, touching the Quality and Temper of the *Air*, viz. That it be a good Healthy Air, not subject to Foggy Noisomeness, from Fens, or Marshes, that are adjacent; that it be also free from Noxious, Mineral Exhalations. And let not the Place want the sweet Influence of the Sun-beams, nor be wholly destitute of the Breezes of Wind, which will Fan and Purge the Air; the want of which would make it like a stagnated Pool, or stand-

ing Lake of Air, (which is very unhealthy,) as faith *Alberti*, the Florentine *Architect*. He also warneth us to avoid such Places, as are subject to *Earth-quakes, Contagions, Prodigious Births*, and the like.

Dr. F's. Physical Advice is, viz. chiefly to chuse a wholesome Air; For Air, faith he, is a Dish one feeds on every Minute, and therefore it had need to be Salubrious. Wherefore great Men (who may Build where they please, and poor Men where they can,) if herein they prefer their Profit above their Health, I refer them to their Physicians to make them pay for it accordingly. Gato faith, Let your Country-house have a good Air, and not be open to Tempests, seated in a good Soil; let it therein exceed, if you can, and let it stand under a Hill, and behold the South, in a healthy Place.

Pliny adviseth not to set a Country-house too near a Fen, or standing Water, nor yet over against the Stream and Course of a River; for faith he, (as Homer faith to this Purpose) The Fogs, and Mists that arise from a great River, betimes in the Morning before Day-light, cannot chuse but be very cold and unwholesome.

Oeconomical.] Saith Sir H. W. let the House, or Seat be well Watered, and well Fuelled; let not the way to it be too steep, and of an incommodious Access, which will be a Trouble to both Friends, and the Family. And see that it be not Seated too far from some Navigable River, or Arm of the Sea, which



which will conduce to the Ease of the Family, in procuring Provisions, and other Domestic Necessaries.

Dr. F. saith, *That Wood and Water are two staple Commodities*, where they may be had. The former I confess hath made so much Iron, that it must be bought with the more Silver, and grows daily dearer. But it is as well Pleasant as Profitable, to see a House Cas'd with Trees, like that of *Anchises* in Troy.

The worst is, where a Place is bald of Wood, no Art can make it a Perriwig in haste.

And as for Water, the want of it is a great Inconveniency, the Mischief of many Houses, where Servants must bring the Well upon their Shoulders.

*Optical Precepts or Maxims.*] Such I mean, (saith Sir H. W.) as concern the Properties of a well chosen *Prospect*, which may be stiled the Royalty of Sight: For as there is a Lordship (as it were) of the Feet, wherein a Man walketh with much Pleasure about the Limits of his own Possessions; so there is a Lordship likewise of the Eye, which being a Ranging, and Imperious (I had almost said) Usurping Sense, cannot indure to be Circumscribed within a small Space, but must be satisfied both with Extent, and variety; yet on the other side, I find vast and indefinite Prospects, which drown all Apprehensions of very remote Objects condemned by good Authors, as if thereby some Part of the Pleasure (whereof we were speaking) did perish.

*A Pleasant Prospect is to be respected.*] Saith Dr. F. A medly View (such as of Water and Land at *Greenwich*) best entertains the Eyes, refreshing the weary Beholder with exchange of Objects. Yet saith he, I know a more profitable Prospect, where the owner can only see his own Land round about him. To this Head of *Situation* he adds what follows, viz

*A fair Entrance, with an easie Ascent, gives a great Grace to a Building.*] where the Hall is a Preferment out of the Court, Parlour out of the Hall, (not as in some old *Buildings*) where the *Doors* are so low, Pigmies must stoop, and the Rooms so high, that Giants may stand a Tip-toe.

*A Political Precept.*] I remember (saith that great Architect, Sir H. W.) One private Caution, which I know not well how to Rank amongst the rest of the Precepts, unless I call it *Political*, which is this, viz. By no means to *Build* too near a great Neighbour, which were to be as unfortunately Seated on the Earth, as *Mercury* is in the Heavens, for the most part ever in Cumbustion, or Obscurity, under brighter Beams than his own. We are next to come to

2. *Contrivance.*] When the Situation is resolved upon, the next, in Order is *Contrivance*. The which being a thing of great Moment, in this Affair of Building. I cannot enter upon it, before I have given some few general Precautions.

And First, I would by no means have any one that intends to Build a Structure (that shall be either useful or ornamental) set to work without Advice or Assistance of a Surveyor, or a Master-workman, that understands the Theory of Architecture, and is capable of Designing a Draught, or Model, according to the Rules of Art. If a Draught be resolved upon (which may serve indifferent well for small ordinary Buildings) there ought to be the *Ichnography* of each Floor, and also the *Orthography* of each Face of the Building, viz. The Front, the Flanks, and the Rear. But if the Workman be skill'd in Perspective, than more than one Face may be represented in one Diagram *Sce-nographically*.

In the Contrivance of these Designs, whether for Draught, or Model, the Quality of the Persons, for whom the Building is erected, must be considered in respect of the *Ichnographical* Plots especially. For Noble-men have occasion for more Rooms of Office, than others of a meaner Degree; all which much be design'd according to their most convenient Occasions, with the lengths and breadths according to Proportion; also the *Ichnography* of all Chimneys, both in length and breadth of the Hearths, and Jambs, Bed-places, Stairs, and the Latitude of all Doors and Windows, in each Contignation, or Floor. And if it were required in Timber Buildings, the Longitude, Latitude, and Crassitude of Ground-

plates, or Sells, Brest-summers, and in all (whether Timber, Brick, or Stone, Buildings,) the Dimensions of Summers, Girders, Trimmers, and Joysts. Also in the upper Floor, the Scantling of the Draggons-beams, Raifons, or Raifing-pieces, or Wall-plats, &c. And also the Crassitude of Partitions, Walls, &c. in Brick, or Stone-fabricks.

All which, and all other Parts (whether in the *Ichnography*, or *Orthography*) of Buildings, ought to be represented (as also Owens, Stoves, Broilers, Furnaces, Coolers, Fats for Brewing, &c.) with their just Measures, for the best Advantage, as to Commodiousness, Health, Strength, and Ornament. All which Dimensions I would advise to be set in the proper Places to which they belong in the Diagrams, in Characters; because unless the Schemes be very large, it will be very difficult to take the Dimensions nicely, of the smaller parts, if not of the great ones likewise; it will scarce be practicable to take either of them to an Inch, nor perhaps, to two, three, nor four, according as the Diagram may be in Amplitude.

In the *Orthographical* Schemes, there must be the true Delineations, and Dimensions of each Face, and all its Concomitants, as Doors, Windows, Balconies, Towers or Cupolaes, Chimney-shafts, Fascia's, Rustick Quoins, Architraves, Friezes, Cornishes, Pediments, Pilasters, Columns, Shells over Doors, Lanthorns, and all other Ornaments. And if it be

a Timber-building, then all the Members in that Face ought to have their several Sizes, in Characters, and true Positions by the Scale. As for Example, the Ground-plates, or Cells, Interduces, Brest-summers, Beams, Principal-posts, or Braces, Quarters, Prick-posts, or Window-posts; Jambs, or Door-posts, or Punchions, King-pieces, or Joggle-pieces, Struts, Collar-beams, Door-heads, Principal rafters, Shreedings, &c. The Ichnography, Orthography, and Scenography of the Stair-case, may be also delineated, and all its Parts, as Hand-rail, Risers, Noseing of the cover, or top, String-board, and Mouldings on it, or Cartouses, Ballisters, Pendants, &c. with their true Positions, Forms, and Dimensions, all which being carefully done by an ingenious Surveyor, I think 'tis almost impossible for a Workman to mistake, or to commit any Blunders; tho' to my knowledge they are too subject to do it. More of this see in *Draughts*. You shall next hear what Sir H. W. saith of this Matter; his Precautions are as follow, *viz.*

*First*, (saith he) Let no Man that intends to Build, settle his Fancy on a *Draught* in Paper (or Vellum) of the Work or Design, how exactly soever delineated, or set off in Perspective, without a *Model*, or Type of the whole Structure, and of every Parcel, and Partition, either in Past-board, or Wainscot.

*Secondly*, Let the *Model* be as plain as may be, without Co-

lours, or other Beautifying, lest the Pleasure of the Eye, preoecupate the Judgment.

*Lastly*, The bigger this Type is, it is so much the better; not that I would perswade any Man to such an Enormity, as that *Model*, made by *Antonio Labaco*, of St. Peter's Church in Rome, containing 22 Foot in length, 16 in breadth, and 13 in height, which cost 4184 Crowns, the Price of a reasonable Chapel, yet in a Fabrick of 40 or 50000 Pounds, there may be very well expended 30 *l.* at least to procure an exact *Model*, for a little Pennyury in the Premises, may easily create some Absurdity, or Error, of a far greater Charge in the Conclusion.

What Sir H. Wotton doth here Caution, is very proper and requisite; in large and sumptuous Buildings, whether publick or private; as for Noblemen's Mansion-houses, and the like: but it is not worth the while, to be at the Trouble, and Cost to procure a *Model* for every little Dwelling-house that Men build for their own Conveniency.

Having thus given sufficient Caveats, I will next proceed to discourse of the Compartment, or *Contrivance*, whereby to distribute the whole Ground-plot, &c. into Rooms of Office, or Entertainment, as far as the Capacity of the Building, and the Nature of the Climate will correspond, yea, so far as it may be both decent and useful. But in the mean while we are to consider, whether the Building be to be erected in a City,

or



or great Town of Trade ; and whether for a Gentleman, or a Shop-keeper, which is the chief Thing to be considered of by the *Surveyor*, or Master-workman, before he makes his Draught. For a Gentleman's House must not be contrived like a Shop-keeper's, neither must all Shop-keepers Houses be a like ; for some Trades require a deeper, others may dispense with a shallower Shop, and so an Inconveniency may arise in both ; for if the Shop be hollow, the Front Rooms upward ought to be shallow also ; because, by the strict Rules of Architecture, all Partitions of Rooms ought to stand directly one over the other : For if the Shop stands in an eminent Street, the front Rooms are commonly more Airy than the back Rooms, and always more commodious for observing publick Passages in the Street ; and in that Respect it will be inconvenient to make the front Rooms shallow ; but if there be a fair Prospect backwards, of Gardens and Fields, &c. (which seldom happens in Cities) then it may be convenient to make the back Rooms the larger for Entertainment, &c.

'Tis observed by some, That in building of Houses long, the Use of some Rooms will be lost, and it takes up more for Entries and Passages, and requires more Doors : And if a Building consist of a Geometrical Square, if the House be any Thing large, there will be want of Light to the middle Rooms, more than if it be

built like an H, or some other such like Figure (unless it have a Court in the middle of it, which was the Method of building great Houses formerly.) This Way, like a Roman Capital H, is much applauded by some ; for say they, This Form maketh it stand better, and firmer against the Winds, and Light, and Air comes every Way to it, and every Room is near the one to the other. Some affect this Figure very much, because the Offices may be remote from the Parlour, and Rooms of Entertainment, and yet in the same House, which may serve very well for a Country Gentleman's House. Now, the Method which some propose for such Buildings, is thus, In the Front of one of the long Parts of the H is the *Kitchen*, and the *Bake-house*, *Brew house*, and *Dairy-house* ; in the same part behind it, the Hall in the middle of the H, which separates the Parlours (which are in the other long Part) and Rooms of Entertainment from the Offices.

I shall here add a cheap Contrivance in *Building*, approved of by some, and then proceed to Sir Henry Wotton's Method of contriving Noble Buildings.

Now this cheap way is thus, *viz.* Where Bricks may be had, the Walls of a Building may be best, and most securely raised with them, and with little Cost, if there be firm and strong Quoins, or Columns raised at the Corners of the House, of sufficient Strength

Strength, to support the Floors and Roof or the main Beams of it ; they may be built Square, and between them the Walls may be raised of the same Materials, and they may be worked up together with the Quoins, leaving the one half of the extraordinary Breadth of the Quoins without, and the other within the Wall, whereby there will be much Charge saved, both in Materials, and Workmanship, and yet the *Building* be firm and strong.

According to Sir Henry Wotton's Definition of *Contrivance*, it consists of these two Heads, or Principles. Gracefulness, or Decency, and Usefulness.

*Decency* or *Gracefulness*, he also saith, consists in a double Analogy, or Correspondency. First, Between the Parts, and the whole, whereby a great Fabrick should have great *Appartments*, great *Lights*, or *Windows*, great *Entrances*, or *Doors*, great *Stair-Cases*, great *Pillars* or *Pilasters* ; in fine, all the Members and Parts great, proportionable to the Building.

The second Analogy, is between the Parts themselves, not only considering their Breadths, and Lengths, as where we speak of Doors and Windows, which see ; but here, saith Sir Henry, enters a third respect of *Heighth*, a Point saith he, I must confess hardly reduceable to any general Precept. The Truth is, The Ancients did determine the *Longitude* of all Rooms which were longer than broad, by the Double of their *Latitude*.

*Vitruvius*, Lib. 6. Cap. 5. And the *Heighth* by half the Breadth and Length added together ; but when the Room was a Geometrical Square, they made the *Heighth* half as much more as the *Latitude*, which Dimensions the modern Architects have taken leave to vary upon Discretion : Sometimes squaring the *Latitude*, and doubling that square Number, the square Root of that Number is the *Heighth*, and sometimes more, but seldom lower than the Breadth.

But what is here mentioned, I think is not now practised neither, unless it be in some Nobleman's House, who will have a Hall, or the like, higher pitch'd than the rest of the Rooms in the Building, and sometimes a Dining-room ; or else, for the most part, all the Rooms of a Floor are of an equal *Heighth* ; and in my Judgment, 'tis by far the most commodious Method ; because then there is no Room lost, (as there must be where one Room is open almost to the top of the House, as I have observed it in some old Buildings.) And then the Floor of the second story will lie level and even, and not in the odd old Method of Steps, out of one Room into the other.

As to the *Heighth* of Rooms, they are various amongst us, according as what Persons they are built for, and Custom of the Place in the Country ; ordinary Timber-buildings, are about  $7\frac{1}{2}$  or 8 Foot at most, betwixt Floors : The second sort of Houses in the Country,

try, is about nine Foot betwixt the Floors, which for the most part is the Pitch of their Rooms at *Tunbridge-wells*.

The third fort in the Country, (*viz.* in *Kent* and *Sussex*)

are Gentlemen's Seats, which for the most part are 10 or 12 Foot high, such as are New Buildings: But 'tis common in Old Stone-buildings to be much higher, *viz.* 14 or 16 Foot.

By ACT of Parliament for the Building of London, there was reckoned 4 Rates of Houses, *viz.*

The  $\left\{ \begin{smallmatrix} 1 \\ 2 \\ 3 \\ 4 \end{smallmatrix} \right\}$  Rate  $\left\{ \begin{smallmatrix} 2 \\ 3 \\ 4 \\ 5 \end{smallmatrix} \right\}$  Stories, Cellars and Garrets.

The  $\left\{ \begin{smallmatrix} 1 \\ 2 \\ 3 \\ 4 \end{smallmatrix} \right\}$  Rates, Cellars in height betwixt Floor and Ceiling.  $\left\{ \begin{smallmatrix} 6 \frac{1}{2} \\ 6 \frac{1}{2} \\ 6 \frac{1}{2} \end{smallmatrix} \right\}$  Foot. at the Discretion of the Builder.

The  $\left\{ \begin{smallmatrix} 1 \\ 2 \\ 3 \\ 4 \end{smallmatrix} \right\}$  Rate 1 Story  $\left\{ \begin{smallmatrix} 9 \\ 10 \\ 10 \end{smallmatrix} \right\}$  Foot. at Discretion, &c.

The  $\left\{ \begin{smallmatrix} 1 \\ 2 \\ 3 \\ 4 \end{smallmatrix} \right\}$  Rate 2 Story  $\left\{ \begin{smallmatrix} 9 \\ 10 \\ 10 \frac{1}{2} \end{smallmatrix} \right\}$  Foot. at Discretion, &c.

T  $\left\{ \begin{smallmatrix} 1 \\ 2 \\ 3 \\ 4 \end{smallmatrix} \right\}$  Rate 3 Story  $\left\{ \begin{smallmatrix} 9 \\ 9 \\ 9 \frac{1}{2} \end{smallmatrix} \right\}$  Foot. at Discretion, &c.

The  $\left\{ \begin{smallmatrix} 3 \\ 4 \end{smallmatrix} \right\}$  Rate 4 Story  $\left\{ \begin{smallmatrix} 8 \frac{1}{2} \end{smallmatrix} \right\}$  Foot high. at Discretion, &c.

As to Sir Henry's 2d. Point of Contrivance, *viz.* Usefulness, which will consist in a sufficient Number of Rooms, of all sorts, and in their due and apt Coherence without Distraction or Confusion, so as the Spectator may not only call it *Una Fabrica ben racolta*, (as the *Itali-*

*ans* used to say of well united pieces of Work) but likewise that it may appear Airy and Spiritous, and fit to welcome chearful Guests, about which the principal Difficulty will be in Contriving of the *Lights*, and *stair-cases*, whereof I will give you a Note or two: For the



the first, I observe that the Ancient Architects were at much ease; for both *Greeks* and *Romans*, (of whose private Dwellings *Vitruvius* hath left us some Description) had commonly two *Cloyster'd* open Courts one for the Womens side and the other for the Men; who perhaps would now take such a Separation unkindly. However, by this means they had a good Conveniency, to admit Light into the Body of the Building, both from without, and from within, which we must now supply by some open Form of the Fabrick, or (among other graceful Refuges) by Terracing any Story, which is in danger of being too dark; lastly, by Perpendicular Lights from the Roof which are the most natural of all others. As to the second Difficulty, *viz* Contriving of the *stair cases*, which is no hard Point in it self, the only thing in contriving them, is to make them handsome, convenient, and in as little Room as may be, that they be no hindrance to any other Room, or Rooms I have, (saith Sir H. W.) observed that the *Italian* Architects, are inclined to place the *Kitchen*, *Bake house*, *Pantry*, *Washing-rooms*, and the *Buttery* likewise under Ground, level with the Cellar-floor, raising the first Ascent 15 Foot, or more up into the House; by which Method, besides removing of Annoyances out of sight, and having thereby much more room above, it doth also by the Elevation of the Front, add Majesty to the whole Aspect, and

with such a Disposition of the Principal *stair-case*, which commonly doth deliver us into the Plain of the second Story, where Wonders may be done with a little Room: (I have observed, that they commonly place all their Rooms for Office, about five Foot under Ground at *Tunbridge-wells*, the first Stories being about 8 Foot, and then the Lights or Windows of them, be just above the Ground without; but then you must note that those Houses always stand upon an Ascent, that they may have good Sewers to keep these lower Rooms drein'd dry from Water.) But the petty Offices, (saith Sir Henry) may be well enough so remote in *Italy*, yet by the natural Hospitality of *England*, the *Buttery* must be more visible, and we have occasion for larger Ranges or Chimneys, and more ample *Kitchens* than the *Italians*, or than perhaps the aforesaid Compartment will bear; and likewise not so remote from the Dining-room, or else (saith he) besides other Inconveniences, perhaps some of the Dishes may straggle by the way.

Here (saith Sir Henry) let me note a common Defect that we have in our *English Buildings*, *viz*. The want, or neglect of a very useful Room. call'd by the *Italians*, *Il Tinello*, 'tis very frequent, nay almost essential in all their great Families.

'Tis a place properly appointed for a Conservatory of the Meats that are taken from the Table, 'till the Waiters are ready to eat, which with

us is (according to an old fashion) more unseemly fet by, in the mean time.

Now touching the Distribution of *Lodging-chambers*, I must here presume to reprove an odd Custom they have in *Italy*, without any ancient Precedent, as far as I can learn by *Vitruvius*.

Namely, That they so contrive their Partitions, as when all the Doors are open on a Floor, one may see through the whole House, which doth necessarily put an intolerable Servitude upon all the Chambers, except the inmost, where none can arrive but through the rest; or else the Walls must be extream thick for secret Passages, and yet this will not serve the turn without three Doors to every Room; a thing not to be born with in cold and windy Regions, and every way no small weakning to the Work: This Custom I suppose to be grounded upon a fond Ambition of displaying to Strangers all their Furniture at one View.

There is likewise another Defect, (for Absurdities are seldom solitary) which will follow by consequence, upon such a servile disposing of the *Inner chambers*. That they must be forced to make as many common great Rooms, as there shall be several Stories, which (besides that they are usually dark, a thing hardly to be avoided, running as they do quite through the House) do likewise devour so much Place, that thereby they want other Galleries and Rooms of Re-

creation, which I have often consider'd amongst them.

Having thus given some general Hints and Directions, and detected some Faults, the rest must be committed to the Sagacity of the Architect, who will be often put to diverse ingenious Shifts, when he is to wrestle with Scarcity of Ground.

As sometimes to dam one Room (the *Italians* call it *Una Stanza dannata*, as when a *Buttery* is cast under a Stair-case, or the like;) altho' of great use for the Beauty and Benefit of all the rest; at another time to make those fairest which are most in sight, and to leave the other (like a cunning Painter) shadowed. I will close this part (saith Sir Henry) of Compartition, with a short Description of a *Feasting or Entertaining room after the Egyptian manner*, who seem (at least till the time of *Vitruvius*) from the ancient *Hebrews*, and *Phanicians* (whence all Knowledge did flow) to have retain'd with other Sciences in a high Degree, also the Principles and Practices of this magnificent Art. For as far as I can learn, and conjecture by *Vitruvius*, lib. 6. cap 5. there was no Form for such a Royal Use, comparably imagined like that of the afore said Nation; which I shall now proceed to explain.

Let us conceive a Floor, or Area of a good length (e. g. at least 120 Foot) with the Latitude somewhat more than  $\frac{1}{2}$  the Longitude (the Reason whereof shall be in its due place given) along the two

sides and head of the said Room shall run an Order of Columns, or Pillars, which *Palladio* doth suppose Corinthian ones, supplying that Point out of *Greece*, because we know no Order proper to *Egypt*.

The other Head, or fourth Side, I will leave free for Entrance: on the aforesaid Pillars, was laid an Architrave, which is only mentioned by *Vitruvius*; *Palladio* adds thereto (and not without Reason) both Frieze, and Cornice, over which went up a continued Wall, and therein  $\frac{1}{2}$  or  $\frac{3}{4}$  Pillars, answering directly to the Order below, but  $\frac{1}{4}$  part less, between these  $\frac{1}{2}$  Columns above, the whole Room was Windowed round about.

Now from the lowest Pillars, there was laid over a Contignation, or Floor, born up on the outward Wall, and the Head of the Columns with Terrace and Pavement, *sub dio*, saith *Vitruvius*, and so indeed he might safely determine the Matter in *Egypt*, where they fear no Clouds; therefore *Palladio* (who leaveth this Terrace uncovered in the middle, and Ballister'd about) did perhaps construe him rightly, tho' therein differing from others. We must understand a sufficient breadth of Pavement, left between the open part and the Windows, for the Pleasure of the Spectators that look down into the Room. The Latitude I have supposed a little more than  $\frac{1}{2}$  the length, because the Pillars standing at a competent distance from the outward wall, will by Interception

of the Sight, somewhat diminish the breadth in Appearance; in which Case Discretion may be more Licentious than Art. This is the Description of an *Egyptian* Room for Feasts, and other Jollities. About the Walls whereof, we must imagine intire Statues placed below, and illuminated by the descending Light from the Terrasses, and likewise from the Windows between the half Pillars above; so that this Room had abundance of Light, and besides other Garnishings, it must needs seem very stately to the height of the Roof that lay over two Orders of Columns.

Having thus far consider'd of the Lower parts of the Building, the House may now have its Hat put on; which point, tho' it be the last in this Art in Execution, (of any part of the bare Shell of the House) yet it is always the first in Intention; for none would build but for Shelter: I shall now only deliver a few of the properest, and naturallest Considerations belonging to the Roof.

There are two Extrems to be avoided in the Cover or Roof of a House, *viz.* That it be not too heavy, nor too light; the first will be objected against, for pressing too much the under Work; the other contains a more secret Inconveniency; for the Cover or Roof, is not only a bare Defence, but likewise a kind of Band, or Ligature to the whole Fabrick, and therefore will require some reasonable weight; but of the two a House too heavy is the worst:

Next,



Next, there must be Care taken to contrive an Equality of the Pressure of the Roof upon all the parts of the Edifice, *viz.* As much on one side, as it doth on the other. And here *Paladio's* Advice is very good, which is this, *viz.* That the inward Walls may take their share of the Burden, and the outer ones be the less charged with it. *Thirdly*, The *Italians* are very careful in giving the Roof a graceful Pendency, or Slopeness, dividing the whole breadth of the Building into nine parts, two of these Divisions shall be the Perpendicular to the Roof.

But in this Point the Quality of the Region is to be the Rule to walk by, as *Vitruvius* observeth; that those Climates that are subject to great Snows, ought to have sharper Roofs than other places, where they are not subject to the like Accidents; and in all places. Comeliness must yield to Necessity.

I will now add *Dr. T. F's* general Maxims [for Contrivance in Building, which are as followeth, *viz.*

*Let not the common Rooms be several, nor the several Rooms be common*] (by which, I suppose he means (by what follows) that the common Rooms should not be private or retired, nor the private Rooms common.) The Hall (which is a *Pandœum*) ought to lie open, and so ought Galleries and Stairs (provided the whole House be not spent in Paths,) Chambers, and Closets ought to be private and retired.

*Light (God's Eldest Daughter) is a principal Beauty in Building*]

Yet it shines not alike from all parts of the Heavens. An *East-window* gives the infant Beams of the Sun, before they are of Strength to do any harm, and is offensive to none but a Sluggard. A *South-window*, in Summer, is a *Chimney* with a Fire in it, and needs to be skreen'd by a Curtain. In a *West-window*, in Summer-time, towards Night, the sun grows low, and over familiar, with more Light than Delight. A *North-window*, is best for Butteries, and Cellars, where the Beer will be sower, because the Sun smiles on it. *Thorow Lights* are best for Rooms of Entertainment, and Windows on the side for Dormitories.

3. Receipt.] As for Receipt, a House had better be too little for a Day, than too great for a Year. And 'tis easier borrowing of thy Neighbour a brace of Chambers for a Night, than a Bag of Money for a Twelve-Month. It is Vanity therefore to proportion the Receipt to an extraordinary Occasion; as those, who by over-building their Houses, have dilapidated their Lands, and their Estates have been pressed to Death under the weight of their House.

4. Strength.] As for Strength, Country-houses must be Substantives, able to stand of themselves.] Not like City buildings supported by their Neighbours, on each Side. By Strength I mean such as may resist Weather and Time, and not Inva-

fion, Castles being out of Date in *England*, only on the Seacoast. As to making of Motes round about a House, 'tis a Question whether the Fogs that arise from the Water, be not more unhealthful than the Fish brings Profit, or the Water Defence.

In working up the Walls of a *Building*, do not let any Wall be worked up above 3 Foot high, before the next adjoining Wall be brought up to it, that so they may be joyn'd together, and make good Bond in the Work. For there is an ill Custom used among some Bricklayers, to carry, or work up a whole Story of the Party Wall (meaning in *London*) before they work up the Fronts, or other Work adjoining, that should be bonded, or worked up together with them, which occasions Cracks, and Settlings in the Walls of the *Building*, which weaken it very much.

Sometimes the Strength of a *Building* is much impair'd, in the erecting of it, by Reason the Master did not procure sufficient Stuff, or Materials, and Money before he began to build; for when Buildings are erected by Fits and Pauses, now a piece and then another, the Work dries, and sinks unequally, whereby the Walls grow full of Chinks and Crevices; this pausing Humour is condemned by all Authors.

5. *Beauty.*] *Let not the Front look a-squint on a Stranger, but accost him right at his Entrance.*] Uniform, and Proportion, much pleaseth the Eye, and

'tis observed that Free-stone, like a fair Complexion, soonest waxeth old, whilst Bricks keep their Beauty longest.

*Let the Offices (saith Dr. T. F.) keep their due Distance from the Mansion House.*] Those are too familiar which presume to be of the same Pile with it. The same may be said of *Stables* and *Barns*, without which a House is like a City without Works, it can never hold out long.

'Tis very inconvenient (and rather a Blemish, than a Beauty to a Building) to see the Barns and Stables too near a House, because Cattle, Poultry, and such like must be kept near them, which are an Annoyance to a House.

*Gardens also are to attend in their Place.* When God (*Gen. 2. 9.*) planted a Garden Eastward, he made to grow out of the Ground every Tree, pleasant to the Sight, and good for Food. Sure (saith the Dr.) He knew better what was proper to a Garden than those, who now-ad-ays therein only feed the Eyes, and starve both Taste and Smell. Let the Garden (saith Mr. Worlidge) joyn to one, if not more Sides of the House; for what can be more pleasant and beautiful for the most Part of the Year, than to look out of the Parlour, and Chamber-Windows into Gardens? For Beauty, also let there be Courts or Yards kept from Cattle and Poultry, &c. and planted with Trees, to shade, defend, and refresh your House, and the Walls also planted with Vines, and other Wall.

Wall-fruit, all which will add Pleasure and Beauty to your Habitation.

6. *Form or Figure.*] *Figures* are either simple or mixt ; simple *Figures* are either Circular or Angular ; and of Circular, either Compleat or Deficient, as Oval : The Circle is an unprofitable Figure in private Buildings, being the most chargeable, and much Room is lost in the bending of the Walls, besides an ill Distribution of the Light, except from the Center of the Roof, so as it is not used, only in Temples and Amphitheatres. The Oval, and other imperfect Circular *Forms* are subject to the same Exceptions, and are less Capacious.

Touching the Angular *Forms* or *Figures*, it is a true Observation, That this Art loves neither many Angles, nor few ; first, The Triangle, which hath of all the others, the fewest Sides and Corners, is of all others the most condemned, being indeed both incapable and infirm. and not easily reduced into any other Form, but that of it self in the inward Partitions : As for *Figures* of 5, 6, 7, or more Sides and Angles, they are fitter for Military than Civil Architecture ; tho' there is a famous Piece at *Caprarola*, belonging to the House of *Farnese*, contrived by *Baraccio*, in the Form of a Pentagon, with a Circle inscribed, where the Architect did ingeniously wrestle with divers Inconveniencies in disposing of the Lights, and in saving the Va-

cuities, But such Designs as these aim more at Rarity than Commodity, and are rather to be admired than commended. And therefore, by the Precepts and Practice of the best Builders, we resolve upon Rectangular Squares, as a mean betwixt too few, and too many Angles, and thro' the equal Inclination of the Sides (which make the Right Angle) stronger than the Rhomb, or any other Quadrilateral Figure ; but whether the Quadriat, or Rectangle Parallelogram, be the better, is not yet well determined, tho' I prefer the latter, provided the Length do not exceed the Latitude above  $\frac{1}{3}$ , which would much diminish the Aspect.

Of mixt Figures, partly Circular and partly Angular ; there is a proper Objection against them. *viz.* That they offend *Uniformity*. Of which (having here mentioned it) I will add something concerning *Uniformity*.

In *Architecture* there seems to be Two opposite Affections *Uniformity* and *Variety* ; yet these seeming Opposites may be very well reconciled ; as we may observe in our own Bodies, the great Pattern of Nature ; which is very Uniform in the whole Figuration, each Side agreeing with the other both in Number, Quality, and Measure of the Parts : And yet some are round as the Arms, others flat, as the Hands, some prominent. and others indented or retir'd ; so the Limbs of a noble Fabrick may be correspondent enough, tho'



they be various; provided we do not run out into extravagant Fancies, when we are contriving how to part and cast the whole Work. We ought likewise to avoid enormous Heights of six or seven Stories, as well as irregular *Forms*; and on the contrary, are low distended Fronts, as unseemly; or again, When the Face of a Building is narrow, and the Flanks deep.

III. Of the modern Way of Building in England, compared with the ancient.] When I compare the modern English way of Building with the old way, I cannot but wonder at the Genius of old Times. Nothing is, or can be more delightful, and convenient than Height, and Nothing more agreeable to Health than free Air. And yet of old, they used to dwell in Houses, most of them with a blind *Stair-case*, low Ceilings, and dark Windows; the Rooms built at Random, (without any thing of Contrivance) and often with Steps from one to another. So that one would think the People of former Ages, were afraid of Light, and good Air; or loved to play at hide and seek. Where as the Genius of our Times is altogether for light *Stair cases*, fine *Sash-windows*, and lofty *Ceilings*. And such has been, of late, our Builders Industry, in point of *Compactness* and *Uniformity*, That a House after the new way will afford upon the same Quantity of Ground as many more Conveniencies.

The Contrivance of *Closets*,

in most Rooms, and painted *Wainscot*, now so much used, are also two great Improvements, the one for Convenience, the other for Cleanliness and Health: And indeed, for so damp a Country as *England* is, nothing could be better contrived, than *Wainscot*, to keep off the ill Impression of damp Walls. In short, for handsome Accommodations, and neatness of Lodgings, *London* undoubtedly has got the Preheminence.

The greatest Objection against *London-Houses* (being for the most part Brick) is their Slightness, occasioned by the Fines exacted by the Landlords. So that few Houses, at the common Rate of Building, last longer than the Ground-Lease, and that is about 50 or 60 Years. In the mean Time, if there happens to be a long Fit of excessive Heat in *Summer*, or Cold in *Winter*, the Walls being but thin, become at last so penetrated with the Air, that the Tenant must needs be uneasy with it; but those Extreames happen but seldom. And this way of Building is wonderful beneficial to Trades relating to it, for they never want Work in so great a City, where Houses here and there are always repairing, or building up again.

The *Plastered Ceilings*, so much used in *England*, beyond other Countries, make by their Whiteness the Rooms much *Lightfomer*, and are excellent against raging Fires. They stop the Passage of the Dust, and

and lessen the Noise over Head; and in Summer-time the Air of a Room is something the cooler for them, and in the Winter something the warmer, because it keeps out cold Air then, better than the Board-floors alone can do.

IV. *Some general Rules to be observed in Building.*] These following Rules were established by *Act of Parliament*, before the Re-building of London

*First*, In every Foundation within the Ground, add one Brick in Thickness to the Thickness of the Wall, next above the Foundation, to be set off in three Courses, equally on both Sides.

*Secondly*, That no Timber be laid within 12 Inches of the fore-side of the Chimney-jambs.

*Thirdly*, That all Joys<sup>t</sup>s on the back of any Chimney, be laid with a Trimmer, at 6 Inches Distance from the back.

*Fourthly*, That no Timber be laid within the Funnel of any Chimney, upon Penalty to the Workman for every Default 10 s. and 10 s, every Week it continues un-reformed.

*Fifthly*, That no Joys<sup>t</sup>s, or Rafter<sup>s</sup> be laid at greater Distances from one to the other, than 12 Inches; and no Quarters at greater Distance than 14 Inches.

*Sixthly*, That no Joys<sup>t</sup>s bear at longer Length than 10 Foot; and no single Rafter<sup>s</sup> at more in length than 9 Foot.

*Seventhly*, That all Roofs, Window-frames and Cellar-floors be made of Oak.

*Eighthly*, That Tile pins be of Oak.

*Ninthly*, That no Summers or Girders in Brick-Buildings, do lie over the Heads of Doors or Windows.

*Tenthly*, That no Summers or Girders, do lie less than 10 Inches into the Brick-work; nor no Joys<sup>t</sup>s less than 8 Inches, and that they be laid in Lome.

Some also advise, That all Tarsels for Mantle-trees to lie on, or Lintels over Windows, or Templers under Girders, or any other Timber that must lie in the Wall to lay them in Lome, which is a great preserver of Timber; but Mortar eats and corrodes it. Some Workmen pitch the Ends of Timber that lie in the Walls to preserve them from the Mortar.

V. *Of Surveying of a Building* ] I will here briefly touch upon the Method of Surveying of Buildings; by which the Manner and Form of taking Dimensions may be seen, which take as followeth.

*A Survey of a Building Erected by R. M. for R. S. the Thickness of the Walls (as by Agreement) Brick and  $\frac{1}{2}$ , at 3 l. per Rod, for Mortar and Workmanship; the Dimensions were taken as followeth.*

	Foot. Parts.
1. The length of one side. From the Foundation of the Raifing.	$\left\{ \begin{array}{l} 40-50 \\ 16-0 \end{array} \right\} 648-$
2. The breadth at one end. The heighth to the Crofs-beam.	$\left\{ \begin{array}{l} 17-16 \\ 16-50 \end{array} \right\} 283-14$
3. A Partition-wall within. Height to the first Story.	$\left\{ \begin{array}{l} 17-16 \\ 10-50 \end{array} \right\} 180-18$
4. The length of the other side. From an old Wall to the Raifing.	$\left\{ \begin{array}{l} 39-31 \\ 7-00 \end{array} \right\} 275-31$
5. The breadth at the other end. From the Floor to the Crofs-beam.	$\left\{ \begin{array}{l} 17-00 \\ 4-83 \end{array} \right\} 82-11$
6. A Water Table 30 Foot reduced to From the Foundation to the Table.	$\left\{ \begin{array}{l} 7-50 \\ 3-16 \end{array} \right\} 23-70$
7. A Setting off on the other side of the Houfe.	$\left\{ 16-83 \right\} 16-83$
8. A Gable-end.	$\left\langle 66-00 \right\rangle 66-00$
The Total Area, or Content of these Dimensions.	$\left\{ 1575-27 \right\}$



*Particulars to be deducted.*

	F. P.	
1. One Door-case,	$\left\{ \begin{array}{l} \text{Broad} - 8 - 66 \\ \text{High} - 9 - 42 \end{array} \right\}$	81—58
2. Another Door-case,	$\left\{ \begin{array}{l} \text{Broad} - 4 - 33 \\ \text{High} - 7 - 42 \end{array} \right\}$	32—13
3. A Third Door-case,	$\left\{ \begin{array}{l} \text{Broad} - 4 - 33 \\ \text{High} - 5 - 16 \end{array} \right\}$	22—34
4. A Window-case,	$\left\{ \begin{array}{l} \text{Broad} - 4 - 50 \\ \text{Deep} - 4 - 50 \end{array} \right\}$	20—25
5. Another Window-case,	$\left\{ \begin{array}{l} \text{Broad} - 4 - 5 \\ \text{Deep} - 4 - 5 \end{array} \right\}$	20—25
The Total of these Deductions.		176—55
Taken from the whole Content.		1575—27
There rests due to the Bricklayer.		1398—72

Which reduced into square Rods, is 5 Rods 38 Foot.

And then according to the Contract, there will due to the Bricklayer 15 l — 8 s. — 3 d

Thus far Mr. *Leybourn*: We will now see Mr. *Ven. Maudey's* Method of Surveying Buildings, and taking Dimensions; and setting them down in a Pocket-book.

2. *Note*, Before you begin to set down your Dimensions, it is convenient to divide the breadth of the Page or Feet, into so many several Columns as you think you shall have Occasion for; either with Lines drawn with Ink, or a Pencil; your Pocket book being about 4 n. broad, (which is one of the broader sized Poc-

ket books) you may then divide a Leaf into four Columns.

3. Before any Dimensions are set down, the Work-master's and Work-men's Names ought to be expressed; also the place where, the Day of the Month, and Date when you measure. I will suppose, for Example, That you were to measure Glazing; then observe if it were Glazed with Square-glass, you must write Squares above the Dimensions, and over those Dimensions which are appertaining to Quarry-glass (if there be any) you must write Quarries, that when you come to make the *Bill of Measurement*, you may express them severally, because they are of several Prizes.

4. The

4. The better to explain the Method, I will here insert a *Bill of Measurement of Glazing.*

Glazing done for C. D. in Long-acre, by T. G. of St. Martin's in the Fields; Measured October the 19th. 1725.

Quarries.			Products.			Squares.			Products.		
F.	I.	P.	F.	I.	P.	F.	I.	P.	F.	I.	P.
5—8—6}			31—11—30			04—03—00}			04—11—06		
5—7—3}				01—02—00}							
<hr/>						<hr/>					
5—3—6}			12—06—09			02—00—00}			03—00—00		
2—4—6}				01—06—00}							
<hr/>						<hr/>					
2—6—0}			(3) 08—09—00			06—00—09}			30—05—03		
1—2—0}				05—00—03}							
<hr/>						<hr/>					
2—1—0}			(2) 07—02—04			01—02—00}			(2) 07—00—00		
1—8—6}				03—00—00}							
<hr/>						<hr/>					
			60—5—11						45—04—09		

### *An Explanation of the Columns.*

In the *first* Column towards the Left-hand, are the Dimensions of Glazings done with Squares; which you are taught to cast up in *Cross Multiplication*, which see N. 2.

In the *second* Column you have the Product of each Dimension just against it.

In the *third* Column you have the four Dimensions of Glazing done with Squares.

In the *last* you have the Product of each Dimension just against it also.

At the bottom of the *second* Column, you have the Sum Total of the Products of the Dimensions done with Quarries, which is 60 Feet, 5 Inches, and 11 Parts.

Also at the bottom of the *last* Column, there is the Total Sum of the Products of those Dimensions of the Glazing that was done with Squares, being 45 foot, 4 n. 9 p. As for the odd parts it signifies but little if they are left out in the Sum Totals of a *Bill of Measurement*, for it will amount to but very little in value.

5. N. B. When you are taking of Dimensions, and setting them down in your Pocket-book, whether it be Glazing, or any other Tradesman's Work; you must observe to leave every other Column vacant, that so having set down all your Dimensions in your Book

Book (which must be generally done, before any is cast up) when you come to cast them up) which must be in another Book, or a Sheet of Paper) you may enter the Product of each pair of Dimensions, just against them, as you see before.

6. If there be another to measure against you, and there should be a Mistake in either of your castings up of the Dimensions (as it often happens thro' Security or Negligence) then one by reading over the Dimensions in his Book with the Product to each Dimension as he goes on, and the other looking in his own Book, the

Mistake will soon be discovered, which must be rectified between you.

Therefore to be certain in casting up your Dimensions, you ought to cast them up twice, if not three times, *viz.* After you have cast them all over once, begin and cast them over again, and see whether it agrees with your first casting up, if not, then cast up again. When you make your Bill of Measurement, your must set your Name to it at the lower end of the Bill.

7. An Example of a *Bill of Measurement.*

Glaziers Work done for G. D. in Long-acre, by  
T. G. of St. Martin's in the Fields; Measured  
October the 19th, 1725.

	l.	s.	d.
For 60 Foot, 5 Inches of Glazing, done with Quarries,	}	01	—05—1 $\frac{1}{4}$
at 5 d. per Foot.			

For 45 Foot, and 4 Inches of Glazing, done with Squares	}	01	—06—2 $\frac{1}{4}$
at 7 d. per Foot.			

---

Sum Total      2—11—3 $\frac{1}{2}$

*Measured the Day and  
Year above written,  
by T. S.*

For the Satisfaction of the Curious, I will shew the Method of taking the Dimensions of *Bricklayers work* which is the most troublesome of any Mechanick's Work (relating to Building) to measure.

8. Altho' I said before, that you might divide a Page or

Leaf of your Measuring-book into four Parts, or Columns; yet in measuring of *Briklayers work*, it will be necessary to divide a Page into but three Columns, one large one for the Apellations, two smaller, one for the Dimensions, the other for the Products.



*As in this Example.*

<i>Appellations.</i>	<i>Dimensions.</i>	<i>Products.</i>
Basis of the Front and Rear	$\left\{ \begin{array}{c} 3 \text{ B.} \\ \text{f.} \quad \text{n.} \\ 25-00 \\ 00-06 \end{array} \right\} (2)$	$\begin{array}{c} 3 \text{ B.} \\ \text{f.} \quad \text{n.} \\ 25-00 \end{array}$
Front and Rear	$\left\{ \begin{array}{c} 2 \frac{1}{2} \text{ B.} \\ 25-00 \\ 11-00 \end{array} \right\} (2)$	$\begin{array}{c} 2 \frac{1}{2} \text{ B.} \\ 550-00 \end{array}$
Basis of both the Flank-walls	$\left\{ \begin{array}{c} 2 \frac{1}{2} \text{ B.} \\ 36-02 \\ 00-06 \end{array} \right\} (2)$	$\begin{array}{c} 2 \frac{1}{2} \text{ B.} \\ 36-02 \end{array}$
Both the Flanks	$\left\{ \begin{array}{c} 2 \text{ B.} \\ 36-02 \\ 11-00 \end{array} \right\} (2)$	$\begin{array}{c} 2 \text{ B.} \\ 795-08 \end{array}$
The Wall between the Chimney	$\left\{ \begin{array}{c} 1 \frac{1}{2} \text{ B.} \\ 11-06 \\ 09-10 \end{array} \right\} (2)$	$\begin{array}{c} 1 \frac{1}{2} \text{ B.} \\ 113-01 \end{array}$
The falling back of both Chim	$\left\{ \begin{array}{c} 1 \text{ B.} \\ 05-00 \\ 04-00 \end{array} \right\} (2)$	$\begin{array}{c} 1 \text{ B.} \\ 40-00 \end{array}$
The four Jambs	$\left\{ \begin{array}{c} 2 \text{ B.} \\ 14-00 \\ 11-00 \end{array} \right\} (2)$	$\begin{array}{c} 2 \text{ B.} \\ 161-00 \end{array}$
The fore part, or Brefts of both Chimneys	$\left\{ \begin{array}{c} 2 \text{ B.} \\ 11-06 \\ 5-00 \end{array} \right\} (2)$	$\begin{array}{c} 2 \text{ B.} \\ 115-00 \end{array}$

9. The *Dimensions* with their *Products*, being set down, in the next place, the *Deductions* of the Windows and Doors must be put down, and their *Products*. V. P. of *Dimensions* in *Brick-work*.

### *Deductions.*

	Deduct.		Prod.
	$2\frac{1}{2}$ B.		$2\frac{1}{2}$ B.
	f. n.		f. n.
The 4 Windows	$\left\{ \begin{array}{l} 06-06 \\ 04-00 \end{array} \right\} (4)$		$104-00$

	$2\frac{1}{2}$ B.	
The 2 Doors	$\left\{ \begin{array}{l} 09-00 \\ 04-00 \end{array} \right\} (2)$	$72-00$

10. The next Thing in order to be done is, to add the *Products* of each several thickness into one Sum.

### *The Products of the several Thicknesses.*

3 B.	$2\frac{1}{2}$ B.	2 B.	$1\frac{1}{2}$ B.	1 B.
25-00	55-00	795-08	113-01	40-00
	36-02	161-00		
		115-00		
	586-02			
		1071-08		

The several *Products* of each Thickness being added.

In the first Column on the Left-hand there is 25 Feet of 3 B.

In the second 586, 2. of  $2\frac{1}{2}$  B. &c.

How to find these *Products*, see cross Multiplication. N.2.

Having found the total Sum of the *Products* of the *Deductions*; each total Sum must be subtracted from the total Sum of the *Products* of the *Dimensions* that are of the same *Craffitude*.

E. G. the *Products* of the *Deductions* in

$2\frac{1}{2}$ B.
104-00
73-00

The Total *Product* in  $2\frac{1}{2}$  B. is } 176-00

Which 176 Feet of  $2\frac{1}{2}$  B. Work, being contain'd in the Windows and Doors; must be Subtracted from the 586 Feet, and 2 Inches being the Total *Product* of all the *Dimensions* of that *Craffitude*, viz.  $2\frac{1}{2}$  B. viz.  $2\frac{1}{2}$  B. Work.

This

This is manifest to Reason.

Because when the *Dimensions* of the Front and Rear were taken, the whole Length and Breadth was taken over the Doors and Windows, allowing Nothing of Abatement for them.

12. N. B That whatsoever Doors, or Windows, or any other Vacancies, are measured over when the *Dimensions* are taken ; you must remember to make Deduction for them out of the Total Product of the *Dimensions* of the same *Crafftitude* wherein they were situated.

To make it the plainer, take the following

### Example.

The Doors and Windows, being in  $2\frac{1}{2}$  Brick-work, I set down the Total Product of all the *Dimensions* of that *Crafftitude* which is

The Total Product of all the Deductions of that Thickness, which are to be subtracted,	} 179—00
is	

The Remainder is 410—02

The like Method must have been practised, if there had been any other *Deductions* in any other *Crafftitude* : Subtraction must have been made of all such *Deductions*, out of the *Products* of the *Dimensions*, before you went to reduce your several *Crafftitudes* to the Standard-thickness of  $1\frac{1}{2}$  B.

But seeing we have no other *Deductions* in our present Example of a Survey ; the next Thing to be put in Practice, will be to reduce the several *Crafftitudes* to the customary Thickness of  $1\frac{1}{2}$  Brick. But I think it necessary to refer it to Walls, under the Head of measuring them.

More of this Nature, viz. Of Surveying Buildings, or taking *Dimensions*, &c. may be seen under the different Heads of Carpenters Work, Joiners, Bricklayers, Plasterers, Masons, Painters, Thatchers.

VI. Of measuring Buildings.] Having briefly treated of taking *Dimensions*, &c. I shall here add but little under this Head of Measuring ; only mention the Artificers relating to Building that usually work by Measure ; which are first Bricklayers second Carpenters, third Plasterers, fourth Painters, fifth Glaziers, sixth Joiners, and seventh Masons. Some of these work by the superficial Yard, some by the Rod, some by the Square, and some by the Foot : Of all which Works the *Dimensions* are taken either with a 10 Foot Rod, or a 5 Foot one, or with a 2 Foot Rule, and sometimes with a Line But let the *Dimensions* be taken how they will, they are usually set down in Feet, Inches, and parts of Inches ; or else in Feet and Centesimal Parts of Feet, which last way is easiest cast up ; the following Table will shew the Centesimals.



*A TABLE of Centesimal Numbers, for every Inch, and quarter of an Inch in a Foot.*

Inches.	100 P. Foot	1 quarter of an Inch.	2 quarters of an Inch.	3 quarters of an Inch.
		100 P. Foot.	100 P. Foot.	100 P. Foot.
0	. 00	. 02	. 04	. 06
1	. 08	. 10	. 12	. 14
2	. 16	. 18	. 2	. 22
3	. 25	. 27	. 29	. 31
4	. 33	. 35	. 37	. 39
	. 42	. 44	. 45	. 47
6	. 50	. 52	. 53	. 55
7	. 56	. 60	. 62	. 64
8	. 66	. 68	. 7	. 72
9	. 75	. 77	. 79	. 81
10	. 83	. 85	. 87	. 9
11	. 92	. 94	. 96	. 98
1 Foot.	100			

To set any number of Feet, Inches and Parts, as suppose 30 Feet, 8 Inches and 2 Quarters, you must first set down 30 Feet with a Period, or Comma after it, thus, 30, and then look in the first Column of the Table for 8 Inches, and at the Head of the Table for 2 quarters, and then against 8 Inches, and under 2 quarters you will find 7; which set down beyond the 30 to the Right-hand, and it will stand thus, 30. 7.

I shall not here stay to treat of the Method of Measuring all these Artificers Works, because they will be all treated of under their proper Heads. But shall now proceed to speak something.

VII. Of Valuing Buildings.] To estimate the Charge of Erecting any House near the

Truth, or to value one that is already built, so that you come something near the Matter, (provided it be built of Brick and Timber, as they usually build in London, and Gentlemen in the Country) there must be given,

(1.) The Dimensions thereof, not only in length and breadth, but also in height, in respect of the Number of Stories: For,

(2.) By the length and breadth, the quantity of Squares upon each Floor may be found, and also the Squares of Roofing in the Carpenter's-work, and also Tyling in the Healers, or Bricklayer's-work. And,

(3.) By the height, one may give a near Estimate of the Rows of Brick-work, contain'd in the Walls round about, and in the Partition-walls, if there

be any; and also in the *Chimneys*: Then,

(4.) Consider how many pairs of *Stairs*, and of what fort.

(5.) What Partitions of Timber with Doors.

(6.) What Timber Front.

(7.) What Number of Window frames, and Lights.

(8.) What Iron-work; and

(9.) What Lead, &c.

Of all which, see the particular Heads.

Now saith Mr. *Leybourn*, what will be the Charge of Erecting a Fabrick of Brick-walls and Timber, which shall be 20 Foot in Front, and 44 deep, (which is the Method in *London* (and I believe in most Cities, &c.) for the Front to be shorter than the Flanks) and to consist of Cellars, three Stories, and Garrets; which is one of the second Rate Houses. We will suppose the Price of Materials to be as followeth, (in *London*,) viz.

		<i>l.</i>	<i>s.</i>	<i>d.</i>
For	Bricks per Thousand	00	16	00
	Tiles per Thousand	01	05	00
	Lime per Hundred	00	10	00
	Sand per Load	00	03	00
	Oak, or Fir Timber per Load.	02	15	00
	Deal-boards per Hundred	07	10	00
	Laths per Bundle.	06	01	06

### *As for the Plaisterers Work.*

For	Lathing, Plaistering, Rendring and	}			
	Washing with White and Size,				
	per Yard.		00	01	02
	Lathing and Plaistering, per Yard.		00	00	10
	Plaistering and Sizing, per Yard.		00	00	60

### *Smiths Work.*

For	Iron Balconies, per <i>ft.</i>	00	00	05
	Folding Casements, per Pair.	00	16	00
	Ordinary Casements, per Piece.	00	04	06

### *For Painting.*

Window Lights	00	00	06
Shop Windows, Doors, Pales, per Yard.	00	01	00

Now, saith he, from these Rates of Materials for Building, and for Workmanship: Such a House as is here proposed, will amount to about 360 Pounds, which is near 41 *l.* per Square.

Now

Now Mr. *H. Phillips*, proposes the following Method to find the value of a *Building*, viz. Suppose, saith he, a House, which is 1 Rod or 16  $\frac{1}{2}$  f. in Front, and 2 Rods deep back in the Flanks; the Compass of this House will be 6 Rods, and if this House stands in a high Street, having a Cellar 4 Stories, and a Garret, (which is one of the third Rate Houses) the height thereof will be 50 Foot, or 3 Rods; so that there will be 18 Rod of *Brick-work* in the Walls; which may be all reduced to a Brick and  $\frac{1}{2}$  thick, and suppose each Rod of *Brick-work* to contain 4500 of Bricks, and will cost about 7 l. the Building, viz. Bricks, Mortar, and Workmanship; then the whole 18 Rods of *Brick-work* will cost about 126 l. The Timber-work for Floors, Windows, Roofs, &c. about as much more; the Tiling, Plastering, Lead, Glazing, and Painting, will be about as

much more so that the whole will amount to 378 l. the Allowance for the *Party walls* will very well pay for the *Chimneys*. So that this House cannot amount to above 400 l. the Building, which is not full 73 l. per Square; but this is a very great Price in comparison of Mr. *Leybourn's*, but he saith that it will be worth more or less, according to the Market-price of the Materials.

The *Friendly Society* of London, for Insuring of Houses, have two Rules by which they value Houses, viz. either by the Rent, or number of Squares contain'd on the Ground-plot. This last is the general Rule by which they value all *Buildings*, which is grounded on an Act of Parliament for the Re-building the City of London, made about Anno 18 Car. 2.

The *Buildings* of the City of London are valued according to their Rates, of which Rates there are four, viz.

1st. Rate	2	} Stories, Cellars, and Garrets.
2	3	
3	4	
4	5	

And the naked *Building*, or Shell of a Brick-house (the Floors being finished) is thus valued by the Square or 100 Foot, if in high Streets, viz.

1st. Rate at	25 l.	} per Square.
2	35 l.	
3	45 l.	
4	50 l.	

But these Rates may be augmented at the Discretion of the Surveyor, or according to the finishing of the House. I shall not now insist any longer on this Head, but defer it till a better opportunity; see some thing more of this nature: House.



VIII. Of *Censuring Buildings* ]

I shall here draw towards a Conclusion of this Head, with Sir Henry Wotton's Methodical Directions, how to Censure, or pass ones Judgment on Fabricks already erected; for without some way to contract ones Judgment, it will be confounded amongst so many Particulars as a Building consists of. I should therefore think it to be (almost) a harder Task, to be a good *Censurer*, than a good Architect: Because the *working* part may be helped by Deliberation, but the *Censuring* part must flow from an Extemporal Habit. Therefore (not to leave this last Part, or Head without some Light) I could wish him that comes to examine any noble (or great) Work; first of all to examine himself, whether the sight of many fine Objects, which he hath seen before, (which remain like impressed Ideas on the Brain) hath not made him apt to think that nothing is good, but that which is the best: to be thus affected, would relish too much of a Cynical Humour

Next, before he comes to give his Opinion concerning the *Edifice* let him endeavour to inform himself precisely of the Age of the *Fabrick*, upon which he is to give his Sentiments or Opinion. And if he shall find the visible Decays to exceed the Proportion of time it hath been built, he may then safely conclude, without making farther inquiry, that the *Materials* were bad, and too slight, or the Seat is nought,

*viz.* Posited on a bad Soil for Foundation, or exposed too much to a Tempestuous Corrosive Air, &c.

Now after these Premises, if the House be found to bear his Years well, (which is always a Sign of a good Constitution.) Then let him suddenly run backwards (for the Method of *Censuring* is contrary to the Method of *Composing*) from the *Ornaments* (which first allure the Eye) to the more Essential *Members*, till at last he be able to form this Conclusion, That the Work is *Commodious, Firm and Delightful*: which are the three capital Qualities in good *Buildings*. And this (as I may term it) is the most scientific way of *Censuring*.

But there are two other things which I must not forget. The first (out of *Georgio Vassari's* Preface before his Laborious Work of the *Lives of Architects*) is to pass a running Examination over the whole Edifice, according to the Properties of a well shapen Man; as whether the *Walls* stand upright, upon a good Foundation; whether the *Fabrick* be of a comely *stature*; whether for the *breadth* it appear well *burnished*; whether the principal *Entrance* be in the middle of the *Front*, like our Mouths; whether the *Windows*, as our Eyes, be set in equal number, and distance on both sides the *Entrance*, &c. Whether the *Offices*, like the Veins in our Bodies be conveniently distributed. &c. For this Allegorical Review, may be driven as far as any Wit will, that is at leisure.

The

The second way, is in *Vitruvius, Lib. 1. Cap. 2.* Where he briefly determines six Considerations, which accomplish this whole Art *viz.* 1. *Ordinatio* 2. *Dispositio.* 3. *Eurythmia* 4. *Symmetria.* 5. *Decor.* And 6. *Distributio.*

The two first of these may be very well spared or omitted; for as far as I can perceive, either by his Interpreters, or by his own Text, (which in that very Place, where perhaps he ought to have been clearest, he is most obscure) he meaneth by *Ordnation*, nothing but a well settling of the *Model* or *Scheme* of the whole *Work.* Nor by *Disposition*, he meaneth no more than a neat and full Expression of the first Idea or Design thereof, which perhaps does more immediately belong to the Artificer, rather than to the Censurer. The other 4 are sufficient to condemn or approve (or absolve) any *Fabrick* whatever. Wherefore

*Eurythmia* is that agreeable Harmony between the Breadth, Length, and Height of all the Rooms of the *Fabrick*, which is very pleasing to all Beholders; which is always so to all, by a secret Power, which is in Proportion: where, let me Note this, That tho' the least Error or Offence that can be committed against the Sight, is Excess of Height, yet that Fault is no where of small Importance, because it is the greatest Offence against the Purse.

*Symmetria*, is a due Proportion of each Part in respect

of the whole; whereby a great *Fabrick* should have great *Apartments* or *Rooms*, great *Lights* or *Windows* great *Entrances* or *Doors*, great *Stair-cases*, great *Pillars* and *Pilasters* &c. In fine, all the Members and Parts large, proportionable to the *Building.* For as it would be but an odd Sight to see a great Man with little Legs, Feet, Arms, Hands, &c. So also it would be undecent to see a great *Fabrick* consist of little *Apartments*, *Lights*, *Stair-cases*, *Entrances*, &c. So on the other hand, as it is strange to see a little Man possess of great Members, and Limbs, it is also very unseemly to see a *Fabrick* that is but small. to be contrived into great *Rooms*, to have great *Stair-cases*, large *Entrances*, *Lights* &c. But again, as it is an unbecoming Sight, to see either a great or little Man to have some of his Members proportionable to his Body, and other some so large, as if they did belong to a Monster or Giant, and not to him to whom they are affixt: So it is equally as ugly to see a little *House* or *Edifice* to have some of its Parts monstrous also, *viz.* great in some Parts of the *Apartments*, and by Consequence others must be as little, or some must be annihilated: and so by Consequence will be wanting: or great *Stair-cases*, great *Windows*, great *Doors*, or any other Members larger than ought to be, in respect of the *Symmetry* of the Parts with the whole. It's likewise unseemly to see some of the Parts too little, (that they are not proportion-

portionable to the whole Structure) as to see a Man have one very small Leg, and the other proportionable to his Body, or to have one little Eyelike a Bird's, and the other like (what it should be) a Man's, &c. Thus we see there are many Errors which may be committed, (for want of a due Consideration, and Premeditation) in the Proportion of the Parts, &c. of a Building, and this is too often too well known to some Gentlemen that are Builders, when they light on Workmen that are unskilful in the Rules of *Proportion*, and the Theory of Architecture; and such Men very often run themselves into a grand Error; so that they are almost confounded in their Business, and know not well which way to wind themselves out of it again; and being thus wandered from the right Road, (for want of this necessary Knowledge.) they still blunder on in the dark, not knowing a better way than their old inartificial one; till they have finished their Course, *viz.* Completed, or rather (which is more proper) concluded, their *Building*; according to their way of working by Guess; and these guessing Workmen too often guess wrong, and commit many Faults, which are easily detected, by any one, that has but a little Skill in judging of a *Building's Symmetry*, &c. Besides their conceal'd Crimes, which such Men are very subject to commit, *viz.* (I mean) their cutting, mangling, and spoiling their Master's

Materials, when they work upon his Stuff, as they generally do in the Country: Sometimes you may observe in your Course of *Censuring*, a Door, or Chimney so misplaced, either to the right or left, so as to spoil the intended use of a Room, and tho' it be not totally spoiled, yet it seems as if the Artificers. (or Surveyor) wanted Instinct as well as Reason, that they could not contrive so well as *Beavers*, and other Brutes which build their own Houses, convenient for their Occasions. Perhaps sometimes you may observe a Chimney so situated in the Angle of a Room, (tho' design'd for Convenience, because it could not well be carried up otherwise from the Chimney below it) yet this Chimney shall spoil the intended use (in some Measure) of two Rooms, (*viz.* That in which the Chimney is, and the next adjoining to the Chimney jamb) thus I knew one that did observe two Chambers in a great Measure thus spoiled; the Chimney was set in the Angle of the inner one, and the Door came into it from the Chamber without, just by one Jamb, the which Jamb (and by Consequence, that whole Chimney) was carried a Foot too far out in the Room, (which they might as well have carried farther the other way) and by this Means the Door was placed too far toward the other Wall of the Rooms, so that the Partition Wall by this Means was made so short betwixt the other



other Wall and the Door (at the Chimney-jamb) that it was thereby rendred unfit to place any Beds against it; although it was the most becoming Place for Beds in the Rooms: Sometimes little sneaking ill-contrived *Stair-cases* are built in a good comely large *Structure*, and then again on the contrary, some small (or at most but *midling*) Houses, shall have a *Stair case* so large in 'em, that if you were first to have seen the *Stair-case*, before you had seen any of the other Apartments, you might well conjecture, That the Rooms of that *Fabrick* (to be in proportion with the *Stair-case*) to be twice, or three times as large again as they are. Nay, perhaps, this is not all the Error neither; for these random Workmen, do so manage the Matter, that they spoil the Conveniencies of Closets under them (or any other Conveniency) tho' it be now A-la-mode to make some little Conveniencies under a *Stair case*; for Closets are accounted an Improvement in our modern Way of Building: Sometimes you may observe an ill Position of *Lights* (or Windows) to a *Stair case*, not out of Necessity, but thro' want of Skill and Precaution. Again, as to Lights (or Windows) you may sometimes in your Viewings observe an ill Position (as well as an irregular Disposition in them), viz. Either in respect of Uniformity, or to secure them from the Weather (I mean by this last, when they are placed too near the Surface of the Building, that

the Walls do not project beyond them, the better to carry the wet from them which run down by the Walls in stormy Weather. And then as to Uniformity in placing them, it sometimes so happens, that they cannot place the Windows on the Garrets exactly over those in the Stories below; and therefore, when they will not be brought into Uniformity with those below them, they ought to be placed as uniform as may be within themselves. What I am now speaking of, hath been observed in a *Fabrick*, which stood in the Form of a Roman Capital L, having two Fronts on the out-side of the L, confronting two Streets which cross'd one another at Right Angles; the Foot, or short part of the L in the *Fabrick*, was not so wide but it might be spann'd with one Roof, but the long part was too wide to be spann'd with one Roof (unless it had been carried up a vast deal higher than the other part, which would have then rendered it very unseemly) and therefore three Roofs were set on the long part of the L, parallel with that on the short part, so that there was three Gutters, and four Gable-heads on that Front which was the long part of the L, and in each of these Gable-heads there was a Window; now, according to the Divisions of the Apartments in the Stories below, the Windows in them would not fit to be placed (none of them) perpendicular under the middle of these Gables, the Artificer

thinking to make it something nearer to Uniformity, places <sup>3</sup> of these Windows all towards (nay, very near) one side of the Gables, pretending they were nearer directly over the others, no doubt; and therefore, in his Judgment, it's nearer to Uniformity; whereas, in Truth, it's farther from it; for by this Means they are not in a uniform Position, neither in respect of those in the Stories below them, nor yet within themselves, which last they would have been, had they been placed in the middle of each Gable, and would have been more decent and comely, in respect of the Front without, and the Rooms within: For Lights being thus disorderly posited, makes it look all a-squint, and as deformed (almost) as to see a Man have an Eye in his Temples. Nay, I could instance in other Things, concerning placing of Lights, or Windows, *viz.* of misplacing them, in respect of Altitude, like the Eyes of some Monsters (mentioned by *Peter Lampagneus*) which were seated in the Shoulders, and Breasts, nay, I think, almost in the Knees, or Feet, as it hath been observed by some in some parts of some *Fabricks*. But these are the Effects and Blunders of working without the Assistance of forecasting, and contriving according to Art. And lastly, (for I will not trouble you any longer at present, concerning *Symmetry*) you ought to observe whether Doors have their due *Symmetry*,

as to their Dimensions, as well as Positions. *viz.* That they be not too high, as if they were for a Barn, nor too low, as if they were made for Houses in *Sophia* in *Bulgaria*, where both *Jews* and *Christians* have their Doors of their Houses but a little above three Foot high, which is so contrived, because the *Turks* should not bring in their Horses, which they would do, and make use of them for Stables in their Travels, if it was not for this Contrivance. In fine, my Meaning is, That these, as well as all other Parts of a Building, ought to be Analogous to the rest of the *Fabrick*. I shall now proceed to speak of

*Decor.*] It is the keeping of a due Respect between the *Inhabitant*, and *Habitation*. Whence *Palladio* did conclude, That the principal *Entrance* was not to be regulated by any certain Dimensions, but by the Dignity of the Master; yet to exceed rather in the more, than in the less, is a Mark of Generosity, and may always be excused with some noble Emblem, or Inscription, as that of the *Contè di Bevilacqua* over his Gate at *Verona*, where 'tis likely there had been committed a little Disproportion,

*Patet Janua: Cor magis.*

*Distributio*, is that useful Casting (or Contriving) of all Rooms for Office, Entertainment, or Pleasure, of which I have sufficiently treated before under this Head of Building. *Numb. II. §. 2.*

These

These are the four general *Heads* which every Man ought to run over before he pretends to pass his Judgment upon the *Building*, or undertake to *censure* the Work that he shall view.

I shall conclude this last Head, touching *Ornaments*, against which (methinks) I hear an Objection, even from some well meaning Man; that these delightful *Crafts*, or *Arts*, may be various ways ill applied in a Nation. I must confess, indeed, that there may be a lascivious, and likewise a superstitious Use, both of *Pictures*, and *Sculpture*: To which Possibility of Misapplication, not only these *semi-liberal Arts* are subject, but even the highest Perfections and Endowments of Nature. As *Beauty* in a light Woman, *Eloquence* in a mutinous Man, *Resolution* in a Russian, prudent *Observation of Hours*, and *Humours*, in a corrupt Courtier, *Sharpness of Wit* and *Argument* in a seducing Scholar, and the like. Nay, finally, let me but ask, What Art can be more pernicious, than even *Religion* it self, if it be converted into an Instrument of Art. Therefore, *Ab abuti ad non uti, negatur consequentia*.

IX. I shall finish this Head of *Building* with that Conclusion of Dr. T F In *Building* (saith he) rather believe any Man than an Artificer, in his own Art for Matter of *Charges*, especially if either he, or any particular Friend of his, be like to be concerned about that *Fabrick* which you design to

erect; not but that they can tell nearly the Charge, when they know the *Design*, viz. Some ingenious Workmen, but there is but few of them in the Country, that truly understand the Method of valuing a *Building* and those that do, if they are like to have any hand in it, it is very rare, if they will give a just Estimate of it, according to their Judgment; because they think, if they should acquaint the *Builder* with the full Cost at first, it would blast a young Builder in the Bud, and therefore they stop him up till it hath cost him something to confute them

The *Spirit* of *Building* first possessed People after the Flood, which then caused the Confusion of Languages, and since, of the Estate of many a Man. I have known some Persons that would curse those with whom they were angry (if they were Men capable of it) by wishing, That the *spirit* of *Building* might possess them.

### *Buttrient.*

Is a Term used by Masons and Bricklayers, by which they mean the Supporters, or Props, on, or against, which the Feet of Arches rest.

### *Buttery.*

r. *What.*] In Nob'e men's, and Gentlemen's Houses, 'tis the Room belonging to the Butler, in which he disposes all his Utensils belonging to his Office, as his Napkin-press,



press, Table-cloth, and Napkins, Pots, Glasses, Tankards, Monteth, Cistern, Cruets, Salvers, Pepper-boxes, Sugar-box, Mustard-pot, Spoons, Knives, Forks, Volder, or Basket, and all other Necessaries appertaining to his Office.

2. *Of its Position.*] According to Sir Henry Wotton's Rule, it ought to be placed on the North-side of the Building, that is design'd for the Offices. It is generally with us in England placed near the Cellar. *viz.* the Room commonly just on the Top of the Cellar-stairs.

### *Bullen-nails.*

1. *What.*] Are a sort of Nails with round Heads, and but short Shanks, Tin'd, and Lacker'd; I think there is about three Sizes of them.

2. *Their Use*] They are used in hanging of Rooms, and fitting up of Beds, covering of ordinary Stools, Chairs, Couches, Desks, Coffins, &c.

### *Buttress.*

1. *What.*] A Term in Architecture, used to signify a Prop, or Support, either of Brick, or Stone, set to keep the Work the firmer in its Position, as against Brick, or Stone-walls that are high, or have any considerable Weight against them on the other side, as a Bank of Earth, or the like; they are also used against the Angles of Steeples, Churches, and other Buildings of Stone, &c. on their out-side,

and along the Walls of such Buildings, as have great and heavy Roofs, which would be subject to thrust the Walls out, if they were not thick, if there be no *Buttresses* placed against them; *Buttresses* are also commonly placed for a Support, and *Butment* against the Feet of Arches, that are turned cross some great Halls, in old Palaces, Abbeys, &c. And generally at the Head of Stone-buildings, where there are great Crocket-windows, there are for the most part, *Buttresses*, placed for *Butments* to the Arches of these Windows. As to the Theory of *Buttresses*, or *Butments*, I never yet could see any thing of it. 'Tis my Thoughts, An ingenious, sagacious, and prying Architect, that is well grounded in the Mathematicks (and would but take the Trouble upon him, thoroughly to examine this Matter) he might bring it within the Bounds of Reason, and Rules; whereby to know nearly of what Size, and (by Consequence) what Weight a *Buttress*, or *Butment* ought to be (which you must Note must be various.) according to the Dimensions, and Form of the Arch. and the Weight which is superincumbent on it. As to the Weight of the Materials, both on the Arch. and in the *Buttress*, or *Butment*, 'tis no Difficulty to calculate. But perhaps it may be here objected, there is a sensible Difference as to the Strength and Goodness of the Mortar, which may in a great Measure compensate for

for the Weight of the *Buttress*, or *Butment*; for where there is a strong firm Mortar made use of, less Weight (or Magnitude) of Brick, or Stone, shall be capable to resist the Pressure of an Arch, with its Superincumbent Materials, than where the Mortar is bad and feeble. To which I answer. I could very well experiment the Strength of Mortar, both as to a direct, or oblique Force, *viz.* Either shoving it out of its Position, or pulling it the shortest way from its Adherents, by which I mean lifting directly up. I think it may also be feasible (and I am sure it would be useful) to make Experiments, to try what *Butment* would be requisite for Arches of any Dimension, or Form, whether Straight, Semicircular, Sken, or Scheme, or of the third or 4th Point, or Elliptical, &c.

The ingenious Dr. Hook, Reader of Geometry in *Gresham College*, hath promised, in his Treatise of Helioscopes, to publish something of this Nature; but if ever he did do it, I have not been so fortunate as ever to see it, or hear of it, but only in that Treatise; what he there promised, was as follows, *viz.* A true mathematical and mechanical Form of all manner of Arches, with the true *Butment* necessary to each of them. A Problem (saith he) which no Architectonick Writer hath ever yet attempted, much less performed.

A Treatise of this Nature would be extream useful to

the publick: For the want of a certain Rule in Arching, with its necessary *Butment*, hath too often proved the Ruin of some *Structures*, which have been of no small Charge; of which I could give an Instance from my own Observation but very lately; which is of a large Stone-bridge, which was no small Charge to two Counties to erect, not above ten or a dozen Years ago, which is already so intolerably gone to Decay, that it is almost ready to fall, and must be rebuilt again in a little Time; for some of the Arches are forced to be propped with many pieces of Timber; the chiefest Fault that I could ever yet observe (but I did never make any strict Search into it, but only as I rode over it) seems to me, to be want of a good and firm *Butment*, for the Materials did not seem to me to be the Cause of the Defect in the Work. I have only one Thing more to add concerning *Buttresses*, and that is something of the Value of such Work.

2. *Of the Price of building Buttresses.*] As to the Method of putting out such Work, if it be not done by the Day, it is commonly done by the Cubick Foot. A Gentleman that had an Occasion for two *Buttresses* to be built against an old Stone-building, desired me to discourse with his Workman about it, and to put it out by Measure to him; when he and I came to treat of the Matter, I found he knew not well what to say about it; at last he told me he would do it for

5 *d* per Foot Cubick, viz. For Workmanship only, it being a sort of Work, that neither he nor I ever knew put out by the Foot; and therefore, after a little considering the Work, I told him I did think less than  $\frac{1}{2}$  the Price would be sufficient, and therefore we came to no Conclusion at that Time; and before I should see him again, I knew how to inform my self from a new *Buttress* which was built by the Day (by two good Workmen) of five Foot square, and twelve high; When I had found the Solidity of this *Buttress*, I found, that according to their Days Works, it came to about 2 *d*.  $\frac{1}{2}$  per Foot, and this I reckon to be a top Price; because the Workmen are taken to be torpid Operators, and the Work was also very well done; upon which Account for 1 *d*.  $\frac{1}{2}$ . or 2 *d* per Foot, as I find by Observation (from the Quarry-stones at 5 *s*. per Load, Lime 25 *s* for 32 Bushels, Sand at 1 *s*. 6 *d* for 12 Bushels to a Load) that such Work, Materials, and Workmanship may be done for 6 *d*. or 7 *d*. per Foot Cubick.

### *Cabinet,*

STRICTLY taken, is the most retir'd Place in a House. But a Cabinet in Palaces and great Houses, consists of an Outer-chamber, an Anti-chamber, and a Cabinet with a Gallery on the Side.

### *Caliducts,*

That is; Conveyers of Heat. The Ancients used to warm their Rooms with certain (secret) Pipes (call'd *Caliducts*) that were convey'd in the Walls, transporting Heat to sundry Parts of the House, from one common Furnace.

### *Camber beam.*

A Piece of Timber cut Arching (or with an obtuse Angle) in the middle. Camber beams are commonly us'd in Platforms, as Church leads, &c. And in other Cases, where there is occasion for long Beams, a Camber beam being much stronger than another of the same Size; for he being lay'd (as they generally are) with the hollow side downwards, and having good Butments at the Ends, is a kind of an Arch.

### *Cames.*

The small slender Rods of Cast-lead, of which the Glaziers make their turn'd Lead. For their Lead being cast into slender Rods, of some 12 or 14 Inches long each, is call'd the *Came* (and sometimes they call each of those Rods a *Came*) which being afterwards drawn through their Vice, makes their turn'd Lead. See *Lead*, N. 10.

### *Camerated.*

Vaulted or Arched.



*Cant.*

A Term used by some Carpenters, when a piece of Timber comes the wrong way in their Work, they say *cant* it, *i. e.* turn it about.

*Cantalivers.*

1. *What.*] Several Ancient and Experienced Workmen tell me, That they are the same as *Modillions*, only those are plain, but these are carv'd. They are both a kind of Cartouzes, set (at equal distance) under the *Corona* of the *Cornish* of a Building.

2. *Price of making.*] Mr. *Leybourn* says, They are commonly made by the Piece, at different Rates, according to the Curiosity of the Work. And experienced Workmen tell me, They have commonly 2 s. 6 d. for making and carving of each. But in *London* they will carve them for 1 s. 8 d. each.

3. *Price of Painting*] Mr. *Leybourn* says, They are commonly Painted by Tale, or so much per Piece, according to the Colour they are laid in.

*Cantaliver-cornish.*

1. *What.*] Is such a *Cornish* as has *Cantalivers* under it.

2. *Price.*] Mr. *Leybourn* says, They are commonly made by the Foot, running Measure [*i. e.* by the number of Feet, in length only] at different Rates according to the Curiosity of the Work. And experienced Workmen tell me, That they

commonly have 1 s. per Foot for the *Cornish*, it being plain without any Carving in it, and with the *Cantalivers*, about 3 s. 6 d. per Foot.

*Canting-stairs.*

See Stairs.

*Capital.*

Is the upper part of a Column. Such of these as have no Ornaments, as the *Tuscan* and *Dorick*, we call Capitals with *Mouldings*; and the rest which have *Leaves*, and other Ornaments, Capitals with *Sculptures*. The word is borrow'd from the Latin *Capitulum*, the Head or Top of any Thing.

*Tuscan.*] According to *Vitruvius*, the height of the *Tuscan* Capital (by the *Astragal* at the bottom) must be half the Diameter of the Body of the Column below. And this height being divided into 3 Parts, the first, and uppermost part goes to the *Abacus* [which is a Square, or flat *Moulding*] the second Parts goes to the *Boulton*, and *Fillet* under it, [the *Boulton* is a quarter of a Circle, the *Fillet* a narrow flat *Moulding*] and this part is subdivided into 4 Parts, of which 3 go to the *Boulton*, and 1 to the *Fillet*, and the third and last Part goes to the Neck, which is flat and straight. Again, the Neck is divided into two parts, one of which is the breadth of the *Astragal* under it (which consists of a Semicircle, and a *Fillet* under it.) The *Astragal* is

is again divided into 3 parts, of which 2 go to the Semicircle, and 1 to the Fillet. The Projecture of the Capital shall be  $\frac{1}{8}$  part of the Diameter of the Body of the Column below. The Astragal projecteth in a Square.

According to *Scammozzi*, the height of the Capital (by the Astragal at the bottom) must (also) be  $\frac{1}{2}$  the Diameter of the Column below. And this height being divided into 60 parts, 20 of them shall go to the *Abacus* (or *Plinth* as he calls it) 15 to the *Echinus* or half round (which *Vitruvius* calls the *Boultin*) 5 to the *Rondel*, or *Bead-moulding* [which is a Semicircle] 3 to the *List* (which *Vitruvius* calls a *Fillet*) and 17 to the *Neck*, or *Frieze*, (as he calls it.) Again, 7 such Parts must go to the *Rondel* of the Astragal, and 3 to its *List*.

According to *Palladio*, the height of the Capital is (also) half the Diameter of the Body of the Column below (viz. by the Astragal, which none of them reckon a part of the Capital, tho' in propriety of Speech, it ought to be so esteem'd.) And this height is divided into three equal Parts, the uppermost of which goes to the *Abacus* (which he also calls the *Dado*, or *Dye*) the next part goes to the *Ovolo*, or *Echinus* (*Vitruvius* calls it the *Boultin*) the other part is divided into seven, of one of which is made the *Listella* (*Vitruvius* calls it the *Fillet*) under the *Ovolo*, and the other six Parts go to the *Collorino*, or *Neck* (he also calls it the *Hypotrachelium*, or *Frieze* of the Capital.

3. *Dorick*.] According to *Vitruvius*, the height of the Dorick Capital (by the Astragal at the bottom) is equal to  $\frac{1}{2}$  the Diameter of the Body of the Column below. And this height being divided into three Parts, the first and lowermost goes to the Neck, the next Part goes to the *Boultin*, [by which Term he here comprehends several Members and describes this Part in 2 Forms. 1. Of which is a *Boultin* (as 'tis described N. 2.) and 3 *Fillets* under it, and the other is a *Boultin*, and an *Astragal* under it] and this part is divided into 3 parts, 2 of which go to the *Boultin*, properly so call'd, and the other to the 3 *Fillets*, or to the *Astragal*; the *Fillets* are all of an equal size, in the Astragal, the *Fillet* is  $\frac{1}{3}$  of the whole, the third and uppermost part of the Capital is again divided into 3, the 2 lowermost of which go the Square, and the other to the *Cimatium* [which is an O.-G. (with the hollow downwards) and a *Fillet* over it. An O.-G. is a Moulding, somewhat resembling an S, which *Vitruvius* makes of two quarter Circles join'd together; and this *Cimatium* being also divided into 3 parts, 2 of 'em go to the O.-G, and 1 to the *Fillet*. The Astragal under the Capital is equal to  $\frac{1}{2}$  the Neck, and made as in N. 2.

*Scammozzi* makes the Capital of the same height, which he divides into 60 parts, of which 3 go to the *Fillet* of the *Cimatium*, 5 to the O.-G of the *Cimatium*, 12 to the Square, 14 to the *Boultin*, 5 to the *Rondel*,

del, and 2 to the Fillet of the Astragal under the Boulton, and 19 to the Neck. The Astragal under the Neck contains 10 such parts, of which  $6\frac{1}{2}$  goes to the Rondel, and  $3\frac{1}{2}$  to the Fillet. I have describ'd it by *Vitruvius's* Terms, for *Scammozzi* mentions none of them.

*Palladio* (also) makes the Capital of the same heighth with *Vitruvius*, which he divides into 3 parts, the uppermost of which he subdivides into 5 parts, 2 of which go to the *Cimatum* [which *Vitruvius* calls the *Cimatum*] and is again subdivided into 3 parts, one of which goes to the *Lifella*, or *Annulet* [which *Vitruvius* calls a *Fillet*] and the other 2 to the *Scima recta*, [which is an O--G, as 'tis described in this Number] and the other 3 of the first Sub-divisions of this part goes to the *Abacus* [which *Vitruvius* in this Number calls the Square.] The second of the 3 grand Divisions of the Capital, is subdivided into 3 parts, 2 of which go to the *Ovolo*, or *Echinus* [which *Vitruvius* (N. 2.) calls a *Boulton*] and the other to the *Annulets* under it, which are 3, and are equal. The third principal *Hypotrachelium*, or *Frize* [which *Vitruvius* calls the Neck] The *Astragal* under the Neck, is as high as all the 3 *Annulets*

4. *Ionick* ] According to *Vitruvius* is made thus, divide the Semidiameter of the Body of the Column below into 18 parts, take 19 such parts, of which three must go to the *Cimatum*, 1 to the *Fillet*, and 2

to the *Cima* [or O--G] under it. Then take 4 parts for the *Trochilus* of the *Volute*, or *Scroll* [the *Trochilus* is that Member from whence the Scroll begins] then take 4 parts from the *Boulton* [which is  $\frac{1}{4}$  of a Circle] which must be carv'd with Eggs and Anchors. Then take 2 parts for the *Astragal* under the *Boulton*, the *Astragal* is carved with Beads, and has a *Fillet* on each side of it, each  $\frac{1}{4}$  of the whole. Then the 6 remaining parts must go to the half of the *Volute* below. Then take 8 more such parts, which must go to make the remainder of the *Frieze*, or Neck of the Capital, and 3 more such parts for the *Astragal* under the Neck, of which one part goes to the *Fillet*.

*Scammozzi's* Description of the *Ionick* Capital is so blind, that I think none is ever the wiser for it. And *Palladio's* Description agrees with *Vitruvius's*.

5. *Corinthian*.] According to *Vitruvius*, the heighth of this Capital (by the *Astragal* at the bottom) is equal to the Diameter of the Body of the Column below,  $\frac{1}{7}$  part of which goes to the *Abacus* (which consists of a *Boulton*, a *Fillet*, and *Plinth*, [which is but a larger *Fillet*] the *Abacus* being subdivided into 3 parts, 1 of 'em goes to the *Boulton*, and a third part of the next goes to the *Fillet*, and the rest to the *Plinth*. The heighth of the *Astragal* below the Capital, is  $\frac{1}{12}$  part of the Diameter of the Body of the Column below, and is divided into 3 parts whereof the *Fillet* contains 1 part, and the *Boulton* 2.

*Scam-*



*Scammozzi* makes this Capital  $1 \frac{1}{2}$  Diameter of the Column high, which divided into 5 parts 4 of 'em go to the *Boultn* 1 to the *Fillet*, and 9 to the *Lint*, and the rest to the Neck

*Palladio* also makes the height of this Capital equal to the whole Diameter of the Body of the Column below and  $\frac{1}{2}$  part more, which is allowed to the *Abacus*; by which I understand he means all the Mouldings above the *Acanthus* Leaves.

6. Roman, or Composite.] *Vitruvius* makes, and divides this Capital like the *Corinthian*; and so does *Scammozzi*, and *Palladio*; only the Carving of this is somewhat different from that.

### Carcafs.

1. *What.*] The Timber-work (as it were the Skeleton) of a House, before it is Lathed and Plaister'd.

2. *Price of Framing*] The Price of Framing the Carcafs of a House (in the Country) as Workmen inform me, is about 8 s. per Square, if the Workman pay for the Sawing; if not but about 4 s. 6 d. per Square.

### Cariatides.

From the Greek, *Kariatydes*, a People of *Caria*. By these, in Architecture, are meant certain Figures of Captive-Woman drest after the manner of that Nation, and serving instead of Columns to support the Entablements.

These are called, by *M. le Clerc*, very properly, Symbolical Columns. The occasion of 'em (as he tells us, and all Authors agree (it was) take as follows. The ancient Greeks, to preserve the Memory of their Victories, had a Custom in the Columns of their Public Buildings, to add Figures and Representations of the Enemies they had subdu'd. The Wives of the rebellious *Carians*, when reduc'd to Obedience, and the *Persians* vanquish't by the *Lacedaemonians* at *Plataea*, were the first Subjects of these Columns; which have preserv'd, to late Posterity, both the Glory of the Victors, and the Dishonour of the Vanquished. Hence, originally, came the Names *Cariatides* and *Persian* Columns; which have been since applied to all Columns made in Human Figures, tho' with Characters very different from one another.

We don't now represent the *Cariatides* (or *Cariates*) as formerly, with the Marks of Servitude and Slavery: Such Characters were injurious to the Fair-Sex, and for that reason we give them others entirely opposite; never using them in Building, but as singular Beauties, and such as make the greatest Ornament thereof. They never make their Appearance, now, but under the noble Symbols of Prudence, Wisdom, Justice, Temperance, &c. When the *Cariates* are Insulate, they shou'd not have any Weights to support, greater than those of Balconies, little Galleries,

or slight Crownings; and their Entablature may be *Ionick*.

The *Cariates* should always have their Legs pretty close, the one a little a thwart the other, with their Arms either join'd to the Body or to the Head, or at least but very little asunder; that, as they do the Office of Columns, they may, as much as possible, bear the Figures of 'em

There is a particular Defect in the *Cariates*, that being the Figures of Women, they don't seem altogether proper to do the Office of Columns: But this is easily amended when they join to a Wall, there being nothing to do in that Case but to place a Console over them, which shall appear to bear all the Weight of the Entablature. This will have a good Effect; and the *Cariates* will serve for Columns; without appearing overburden'd.

If the *Cariates* have a Projection beyond the Wall in the manner of Pilasters, they may be used in the Architecture of a Gallery or Salon; provided they ben't made to sustain any thing but the Entablature; the Weight of the Vault being born by the Wall behind, which serves them as a Ground or Bottom.

The *Cariates* should never be made of an immoderate Stature; lest being too big, they become frightful to the Ladies. For this reason one would sometimes chuse to confine them under the Impost of a Portico; such Imposts serving them for an Entablature. Further, on occasion, one may

raise 'em on Pedestals, which, however, must not have less than one third of their Height. And if besides this, one place Consoles over their Head, the Figures may be made of a reasonable Size.

The *Cariates* and the common Columns should never be used together, under the same Entablature; for besides that there can never be a just Symmetry between them; the Figures of Women as high as common Columns would be monstrous, and make all the rest of the Architecture appear mean and pitiful.

There are some *Cariates* that have their Arms cut off; as those, for Instance, in the Hall of the Swiss Guards in the *Old Louvre*. But these kind of Mutilations; which are only used to make the Figures more light and delicate, or rather to make them more conformable to the other Columns, are only proper for Termini or Forms, which are a kind of half human Figures seeming to proceed out of a Vagina or Sheath (as is taken notice of under that Word.)

The *Cariates* must always appear in Characters proper to the Places they are used in. Those, for instance, which support the Crowning of a Throne ought to be Symbols, or Representations of Heroick Vertues. Those that serve as Columns in a Place of Devotion, should bear the Characters of Religion, and those again in Halls and Banqueting-Rooms, carry the Marks of Gladness and Rejoycing.

'Tis not proper to use *Cariates* in the Figures of Angels excepting at Baldaquins and Altars; and such as do appear under that Holy Form, ought, in my opinion, to support the Entablature with their Heads, as bearing it easily and without trouble.

The Entablature supported by Angels may be *Corinthian*, and the Virtues *Ionick*; And both the one and the other somewhat less massive than the ordinary. Thus far *Sebastian le Clerc*, concerning the *Cariatick Order*, in his excellent *Treatise of Architecture*.

### Carpenter's.

1. *Work.*] The several kinds of Work done by Carpenters, (in relation to Building) with their Prizes, and Methods of Measuring them, &c. are too many to be comprehended under this so general a word of *Carpenter's work*; and therefore I shall refer them to their *Particulars*, (as Framing, Flooring, Roofing, &c.) where they will much more readily be found.

2. *Bill to make.*] a Carpenter's Bill should be made after this manner.

Mr. William Liberal of London, his Bill of Materials had of, and Work done by Thomas Trueman, June the 24th 1725.

	l	s.	d.
For 17 Load of Oaken-timber, at 22 s. the Load	18	14	00
For 28 Load of Fir-timber, at 35 s. the Load	49	00	00
For 180 Feet of Oaken-plank, 2 Inches thick,	02	5	00
at 3 d. the Foot			
For 17 M. of 10 d. Nails, at 6 s. the M.	05	02	00
For 7 ½ C. of Deals, at 6 l 5 s. the C.	46	17	06
For 28 lb. of large Spikes, at 4 d. the lb.	00	09	04
For 8 Weeks Work for my self, at 3 s. the Day	07	04	00
For 8 Weeks 2 Days Work for my Man, at	06	05	00
2 s. 6 d. the Day			
Sum is	135	16	10

But, Note, If the Carpenter do not work by the Day, then he writes, For so many Square of Roofing (at what Price they agree upon per Square) so much Money Likewise for so many Square of Flooring, at so much per Square, so much Money. Also for so many Square of Partitioning, at so much per Square, so much Money. And for so many Square of Cieling-Joynts, &c. The Windows they set down either at so much per Light, or so much per Window. The Door-cases at so much a piece, either with, or without Doors. The Mantle-



Mantle-trees, Tassels, &c. at so much a piece. The Lintelling, Guttering, Cornish, Winder-boards, &c. at so much per Foot. Stairs, at so much per Step, or so much a Pair, &c.

### *Car-tooses, touzes, -touches.*

In Architecture are much the same as *Modillions*; only these are set under the Cornish in Wainscoting, and those under the Cornish at the Eaves of a House. Some Workmen call them *Dentils*, or *Teeth*.

### *Cartouche.*

*Perrault* says, It is an Ornament of *Carv'd Work*, of no determinate Form, whose Use is to receive a Motto, or Inscription, the word being borrowed from the *Italian Cartoccio*.

### *Cartridges.*

In Architecture are the same as *Cartoozes*.

### *Cart-nails.*

See Nails.

### *Casings of Timber-work.*

1. *What.*] Is a Plastering of a House all over on the outside with Mortar; and then striking it (by a Ruler) with the corner of a Trowel, or the like, to make it resemble the Joyns of Stone; that so the whole house may seem to be Built of Stone

2. *Of the best way of doing it.*] Experienced Workmen tell me,

That it ought to be done upon Heart-laths, because the Mortar will decay the sap ones in a little time: And tho' it be more work to Lath it with Heart, than with Sap-laths; yet 'tis better for the Mortar to hang to, because Heart-laths are narrowest, and they ought to be closer together for Mortar than for Lome. They also tell me, That they commonly use to lay it on in two Thicknesses, *viz.* the last before the first is dry.

3. *Of its Price.*] I have put out this kind of Work to Plasterers for 3 *d.* or 4 *d.* the Yard, including Doors and Windows [*i. e.* measuring it as if there were none] and for 6 *d.* per Yard, excluding Doors and Windows [*i. e.* deducting them from the whole.]

### *Case of Glafs.*

1. *Crown.*] A Case of Crown-glafs (as a Glazier in *London* informs me) contains 24 Tables, each Table being Circular, or nearly so, and (as I observed) about 3 Foot 6 Inches, or 3 Foot 8 Inches Diameter. See P. Glafs, N. 3.

2. *New-castle.*] The same Person tells me, That they have 35 Tables of *New-castle-glafs* to the Case; and that there should be 6 Foot of Glafs in a Table: I am sure there is as much (and more) in one of them I saw in his Ware-house; for I observed them to be much of the Form of a Corner-tile suppos'd to be prest out flat; and by measuring one of them, I found it to

be about  $3\frac{1}{2}$  Foot on the upper or circular End, about 18 or 20 Inches on the lower and opposite End, and the Perpendicular height about 3 Foot. Mr. *Leybourn* (and Mr. *Wing* from him) says, That a Table of *New castle-glass* contains about 5 Foot, and that 45 of these Tables go to a Case.

3. *Normandy*.] Mr. *Wing* says, That 25 Tables make a Case of *Normandy Glass*.

### Casement,

In Architecture is a hollow Moulding. Some Architects make it  $\frac{1}{2}$  of a Circle, others  $\frac{1}{4}$ .

### Casements,

1. *What*.] In Architecture are Windows to open.

2. *Price*.] Mr. *Leybourn* says, They are valu'd (according to their largeness, and the goodness of their Workmanship in their Locks and Hinges,) from 3 s. to 20 s. a Casement. Casements about  $2\frac{1}{2}$  Foot long, are about 4 s. or 4 s. 6 d. a piece. Folding-casements of the like size, with Bolts, Hinges, &c. about 12, or 13 s. the pair. Mr. *Wing* says, They are worth 7 d. or 8 d. the Pound, some 9 d. viz. Folding-casements. Some Smiths in *London* ask'd me 6 d. per Pound for Casements, others said they were worth more, if they had Locks to them; but 6 d. was their Price, if they made them with Turn-bouts (or Turn-buckles, as some call'd 'em) or Cock-spurs, and Pull-backs at the Hind side to pull them to

with. One Smith told me, he would make them for 5 d. per Pound. I know some Smiths in the Country, make 'em by the Foot (measuring the whole Circumference round by the outer Edge of the Casement; thus, if a Casement be 2 Foot long, and  $1\frac{1}{2}$  Foot broad, they reckon him 7 Foot) A Smith at *Rye* ask'd me 9 d. per Foot for ordinary Casements, which I think is dear; for in other Parts of *Sussex*, they proffer'd me to make 'em for 6 d. per Foot, if ordinary; but if something extraordinary (as Folding-casements, &c.) then 8 d. per Foot.

3. *Of Painting*.] Casements are commonly Painted by the Piece, at three Half-pence, 2 d. or 3 d. a piece, according as they are of bigness.

4. *Of Hanging*.] Glaziers in the Country tell me, That 'tis the Smith's Work to hang up the Casements; and if they don't do it themselves, they pay the Glaziers for doing it; who have 2 d. a piece for hanging of small Casements, and 3 d. a piece for large ones.

5. *Of Pining*.] See Glazing. N. IV. §. 1.

### Cast,

In Architecture a piece of Timber, or a Board, or the like, is said to *Cast*, or to *be Cast*, when (by its own Drought, or Moisture, or by the Drought, or Moisture of the Air, or other Accident) it alters its flatness, and straightness, and becomes crooked.

*Catadrome.*

A kind of Engine like a Crane, which Builders use in lifting up, and letting down any great Weights.

*Catheta.*

A Perpendicular, or Plumb-line, falling from the Extremity of the under-side of the Cimatium (of the Ionick Capital) through the Centre of the Volute.

*Cavetto.*

A round Concave Moulding, which has a quite contrary Effect to the *Quarter-round*; the Workmen call it *Mouth* when in its natural Situation, and *Throat*, when turn'd upside-down.

*Cavazion.*

A Term of *Architecture*, signifying the Under-digging, or Hollowing of the Earth. for the Foundation of a Building *Palladio* says, It ought to be the sixth part of the Height of the whole Building.

*Caulicoli.*

The carved Scrolls (under the Abacus) in the Corinthian Capital.

*Ceiling*

1. *What.*] In *Architecture*, is the Lathing, and Plastering at the top of a Room, upon the under side of the Joys of the

next Rom. or upon Joys put up for that Purpose (and call'd Ceiling-joys) if it be in a Garret. These plaister'd Ceilings are much used in *England*, beyond all other Countreys; and they have these Conveniencies with 'em: They make the Rooms much more lightsome; are excellent against raging Fire; they stop the Passage of the Dust, and lessen the Noise over head, and in Summer-time the Air of the Room is somewhat the cooler for it.

2. *Of Measuring*] This Work is commonly done by the Yard, (containing 9 superficial Feet:) And in taking their Dimensions, if the Room be wainscoted, they consider how far the Cornish bears into the Room, by putting a Stick perpendicular to the Ceiling, close to the Edge of the uppermost part of the Cornish, and measuring the Distance from the Perpendicular Stock to the Wainscot; twice which Distance they always deduct from the Length, and Breadth of the Room taken upon the Floor, and the Remainder gives them the true Length and Breadth of the Ceiling; which, if it be taken in Feet (as most commonly it is) they multiply one into the other, and divide the Product by 9, and the Quotient gives them the Content in Yards.

3. *Price.*] In *London* the Workmanship (*viz* Lathing, Plaistering, and Finishing) is commonly reckon'd about two Pence three Farthings per Yard. In *Rutland*, and some



parts of *Kent* (as about *Tunbridge-Wells*, &c.) I know they have 3 *d* per Yard. And in some parts of *Sussex*, the Workmen tell me they have 4 *d*. per Yard. But if the Workmen find all Materials, and Lath it with Heart-oak-laths, then they commonly reckon about 1 *s*. per Yard; and with Fir-laths, about 8 *d*. per Yard.

### Ceiling-Joysts, or Beams.

1. *What.*] See *Ceiling*. N. 1.

2. *Of Measuring.*] The Work of putting up Ceiling-joysts is measur'd by the Square; and therefore the length in Feet being multiply'd by the breadth in Feet, and two Places of Figures being cut off on the Right-hand, what remains to the Left hand is Squares, and what is cut off is odd Feet, of which 25 make a Quarter, 50, half, and 75 three quarters of a Square.

3. *Price.*] Putting up of Ceiling-joysts is worth 4 or 5 *s*. (some Workmen tell me, they have 6 *s*.) per Square.

### Cellars.

1. *What.*] They are the lowest Rooms in a House, the Ceilings of which lie level with the Surface of the Ground, on which the House stands, or at least but very little higher.

2. *Situation.*] Sir Henry *VVotton* says, They ought (unless the whole House be Cellar'd) to be situated on the North-side of the House, as needing a cool and fresh Air.

3. *Of Digging.*] They are

commonly dug by the solid Yard, containing 27 solid Feet; and therefore the Length, Breadth, and Depth in Feet, being all multiply'd together, and the Product divided by 27, the Quotient will give the Content in solid Yards.

### Cement.

1. *What.*] In *Architecture*, is a strong, sticking, cleaving, or binding Mortar.

2. *To make.*] There are two Sorts of Cement, which some Bricklayers use in cementing of Bricks for some kind of Mouldings, or in cementing a Block of Bricks (as they call it) for the carving of Scrolls, or Capitals, or such like, &c. One is called *cold Cement*, the other *hot Cement*; because the former is made, and used without Fire, but the latter is both made and used with Fire. The *cold Cement* being accounted a Secret, is known but to few Bricklayers; but the *hot Cement* is common. I shall here shew how to make them both.

### To make the Cold Cement.

Take half a Pound of old *Cheshire cheese*, pare off the Rhind, and throw it away; cut or grate the Cheese very small and put it into a Pot; put to it about a pint of *Cow-milk*, let it stand all Night, the next Morning get the Whites of 12 or 14 Eggs, then take half a Pound of the best unslack'd or *Quick-lime* that you can get, and beat it to Powder

Powder in a Mortar, then sift it through a fine Hair sieve, into a Tray or Bowl of Wood, or into an Earthen dish, to which put the Cheese and Milk, and stir them well together with a Trowel, or such like thing, breaking the Knots of Cheese, if there be any, then add the Whites of the Eggs, and temper all well together, and so use it. This Cement will be of a white Colour; but if you would have it of the Colour of the Brick, put into it either some very fine Brick-dust, or Almegram, not too much, but only just to colour it.

### *To make the Hot Cement.*

Take one Pound of Rozin, a quarter of a pound of Beeswax, half an ounce of fine Brick-dust, half an Ounce of Chalk-dust, or powder of Chalk; sift both the Brick-dust and Chalk-dust through a fine Hair-sieve, (you may beat the Brick, and the Chalk in a Mortar, before you sift it) boil all together in a Pipkin, or other Vessel, about a quarter of an Hour, stirring it all the while with an Iron or a piece of Lath, or such like; then take it off, and let it stand 4 or 5 Minutes, and it is fit for Use.

*Note,* That the Bricks that are to be cemented with this kind of Cement, must be made hot by the Fire before you spread the Cement on them, and then rub them too and fro, one upon another, as Joyners do, when they glew two Boards together.

## *Chambers.*

1. *What.*] In a Building, all those Rooms are called *Chambers*, that are situated between the lowermost (excepting Cellars) and the uppermost Rooms. So that in some Houses there are two, in others three, or more Stories of Chambers

2. *Situation*] Sir Henry Wotton tells us, That the principal Chambers of Delight (in a House) ought to be situated towards the East.

3. *Proportions.*] The length of a well-proportionate Lodging-Chamber, ought to be the breadth, and half the breadth of the same, or somewhat less; but ought never to exceed that length; for the height, three quarters of the breadth will be a convenient height.

## *Channel.*

In the *Ionick Capital* is that part which is under the *Abacus*, and lies open upon the *Echinus*, or *Eggs*, which has its Centers, or Turnings on every side, to make the *Volutes*

## *Chapter.*

In *Architecture*, signifies the Top, or Head of a Pillar.

## *Chancel.*

Vulgarly *Chancel*, the most sacred part of a Temple, or Church, so called from the *Cancelli*, or Lattices, which anciently us'd to separate that

Part from the rest of the Church. The *Greeks* call it *Adyton*.

### Chimneys.

1. *What.*] A Chimney is a particular part of a House, design'd for the Conveniency of Fireing, with a Tube, or Tunnel to convey away the Smoak.

2. *Of Measuring.*] Tho' Bricklayers, in making of Chimneys, do commonly agree by the Hearth; yet they sometimes also work by the Rod, as in other Brick-work; and then their Method of taking their Dimensions, is thus:

If the Chimney stand singly, and alone, not leaning against, or being in a Wall, and it be wrought upright over the Mantle-tree to the next Floor; they gird it about the Brest for the Length, and take the Height of the Story for the Breadth, and the Thickness of the Jambs for the Thickness. But if the Chimney stand against (or in) a Wall, which is before measur'd with the rest of the Building; then the Breadth of the Brest, or Front, together with the Depth of the two Jambs, is the Length, the Height of the Story the Breadth, and the Thickness of the Jambs the Thickness. But if the Chimney stand in an Angle of a Room, and have no Jambs; then the Breadth of the Brest is the Breadth, the Height of the Story the Length, and the Thickness the Thickness. Then for the Shaft, (which is

that part which appears above the Tyling,) they commonly gird it about in the smallest part, for the Breadth, and take the Length of the Shaft for the Length; and they commonly reckon the Thickness of both Sides for the Thickness, in Consideration of the Widths, Pargeting, and Scaffolding.

*Note.* Here is nothing to be deducted for the Vacancy betwixt the Hearth and the Mantle tree, because of the Widths and the Thickning for the next Hearth above.

The Dimensions being thus taken in Feet, the Work is thus measur'd: Multiply each particular Length by his Breadth, and that Product by its Thickness in Half-bricks, (*i. e.* by 2, for 1 Brick thick, by 3, for  $1\frac{1}{2}$  Brick thick, and by 4, for two Bricks thick, &c.) Add these Products into one Sum which divide by 3, and the Quotient will give the Content of the whole Chimney in Feet, and the Standard-thickness of a Brick and half. Then divide this Content in Feet, by  $272\frac{1}{4}$ , and the Quotient will be the Content in Rods. But, because 'tis difficult to divide by  $272\frac{1}{4}$ , you may do us. — Add two Cyphers to the Right hand of the Content in Feet, and then divide it by 27225, and the Quotient will be the Content in Rods, as before. And, every 100 of the Remainder, is one Foot of Work. Or 6807, of the Remainder, is  $\frac{1}{4}$  of a Rod, 1463, is  $\frac{1}{2}$  a Rod, and 20419 is  $\frac{3}{4}$  of a Rod.



3. *Price.*] Mr. *Leybourn* says, That Chimneys are sometimes measur'd, and paid for by the Rod, like other Brick-work : And sometimes, says he, they are paid for by the Fire-hearth, at so much the Fire-hearth ; which says he is various, from 20, to 50 s. the Hearth And Mr. *Wing* says, That Building of Chimneys for ordinary Buildings, with Architrave Frieze, and Cornish, is worth, from 15 s. to 20 s. per Hearth, according to their heighth, and substance ; and without Architrave, and Frieze, from 10 s. to 20 s. But in great Buildings, says he, (I suppose he means in his Country of *Rutland*,) they are usually done by the Foot, viz. at about 6 d. per Foot. I know they are

commonly built in *London*, and about *Tunbridge-wells*, for about 15 s. per Hearth : But some Workmen in *Suffex* tell me, they have 20 s. and sometimes 25 s. per Hearth for building of 'em.

4. *Rules about Timbers near 'em.*] 1. Let no Timber be laid within 12 Inches of the fore-side of the Chimney-jambs.

2. Let all Joys on the back of any Chimney be laid with a Trimmer, at 6 Inches distance from the Back. 3. Let no Timber be laid within the Tunnel of any Chimney.

5. *Proportions.*] *Palladio* lays down the following Proportions, for the breadths, and depths of Chimneys, (on the inside) and for their heighth to the Mantle-tree.

Chimneys in	Breadth.	Heighth.	Depth.
Halls,	6, 7, or 8 Foot	4 $\frac{1}{2}$ , or 5 Foot	2 $\frac{1}{2}$ , or 3 Foot
Chambers,	5 $\frac{1}{2}$ 6, or 7 Foot	4, or 4 $\frac{1}{2}$ Foot	2, or 2 $\frac{1}{2}$ Foot
Studies, and } Wardrobes. }	4, 4 $\frac{1}{2}$ , or 5 Foot	4, or 4 $\frac{1}{2}$ Foot	2 or 2 $\frac{1}{2}$ Foot

Nevertheless, in these Points, the Workman ought rather to be guided by the Modern Fashions, than by the words of this ancient Architect.

6. *To prevent Smoaking* ] Mr. *Lucar* (in his *Solace*,) adviseth to leave two Holes (one over another) on each side of the Chimney, one sloping upwards, and the other downwards, or else to place two

Pipes (in the same Position) on each side of the Chimney. Through these Holes, or Pipes, says he, the Smoak will easily pass out of any Tunnel, which way soever the Wind blows. I cannot tell how this may take effect ; but to me it seems but a Fancy. I think *Philippe de l'Orme's* Advice is better, who proposes to provide a hollow Brass ball of a reasonable Capacity,

capacity, with a little Hole on one side for the Reception of Water. (I think it were better made with a short Nose to skrew-off, when 'tis filled with Water; and then the Hole at the end of this Nose needs not to be bigger than that at the small end of a Tobacco-pipe.) This Ball being fill'd with Water, is to be placed (with the Hole upwards) upon an Iron-wire, that shall traverse the Chimney a little about the Mantle-tree, at the ordinary height of the greatest Heat, or Flames; and when the Water is hot, it will be rarify'd, and break out of the Hole in a windy Vapour; which will force up the Smoak, that otherwise might linger in the Tunnel by the way, and oftentimes revert. It were good to have two of these Balls, one of them may supply the place of the other, when 'tis exhausted; or for a need, blow the Fire in the mean time.

I have seen on the top of some Chimneys, a sort of Fane, or Weather-cock, (some call it a Begger-man) whose back-side is cover'd with Plates of Tin; so that which way soever the Wind be, it can never keep down the Smoak in the Chimney, but it always comes out free, and undisturb'd. I have known this last Contrivance help Chimneys, that before Smoak'd very much. But I believe the ingenious Carpenter, and Bricklayer might prevent the Smoaking of any Chimney, by a due Situation of the Doors of the Room, and an apt *falling back* of the Back,

and convenient gathering of the Wings, and Brest of the Chimney.

### *Chimney-hooks.*

1. *What.*] These are Hooks of Steel or Brass, put into the Jambs of the Chimney, in each Jamb, one for the handle of the Fire-pan, and Tongs to rest in.

2. *Price.*] The Steel-hooks are commonly about 1 s. the pair, and the Brass ones, about 2 s. the pair in London; for so I have there bought 'em.

### *Chimney-jambs.*

The sides of a Chimney, commonly coming out Perpendicularly (tho' sometimes Circularly) from the Back; on the Extremities of which the Mantle-tree resteth. Also, see Corner-stone.

### *Chimney-pieces.*

1. *What.*] Certain Mouldings of Wood, or Stone, standing on the fore-side of the Jambs, and coming over the Mantle-tree.

2. *Price.*] *Chimney pieces* of Free-stone, wrought plain, are worth 10 s. but there may be such Mouldings wrought in 'em, as with their Coves, and other Members, may be worth 20, 30, or 40 s. a piece. *Chimney pieces* of Egyptian, or Black Fleak'd-marble, or of Rance, or Liver-colour'd-marble, are worth

(of

(of an ordinary size) 12, or 14 l. a piece. *Chimney pieces of Wood*, are also of different Prizes, as 10, 12, or 14 s. to 20 s. a piece, more or less, according to their largeness, goodness of the Stuff, and Curiosity in the Workmanship.

3. *Painting*] They are commonly painted by the Piece, at about 2 s. a piece, more or less, according to the goodness of the Work, and largeness of the Chimney-pieces.

### *Chaptrels.*

See Arches. N.6.

### *Cima, or Cimaife.*

From the *Greek Kymation*, a Wave, is what in *English* we call *Ogee*, *Ogive*, and sometimes barely O..G. Is is a *Moulding* waved on its Contour, Concave at the Top, and Convex at the Bottom, and which makes the uppermost Member, and as it were the *Cime* or *Top* of large Cornices. Of these there are two kinds; in the one, that part which has the greatest *Projecture* in Concave, and is term'd *Doucine*, or an upright *Ogee*; in the other, the Convex part has the greatest *Projecture*; and this is call'd the *Heel*, or inverted *Ogee*. Some write the word *Simaise*, and derive it from *Simus*, flat nosed; but that *Etymology* is false the Beauty of this Member consisting in having its *Projecture* equal to its Height.

### *Cimbia.*

See Pedestal. N.

### *Cincture.*

Is a List or Fillet at the Top or Bottom of a Column. That at the Top is sometimes call'd *Colier*, and sometimes *Annulus*.

### *Cilery.*

A Term in Architecture, signifying the Drapery or Levage that is wrought upon the Heads of Pillars.

### *Cimeliark.*

In Architecture is a Vestry, or Room where the Plate, Vestments, and other rich Things belonging to the Church are kept.

### *Cisterns.*

1. *What.*] They are Vessels, made to serve as Receptacles for Rain, or other Water, for the necessary Uses of a Family.

2. *To make.*] If you design to make your Cisterns under your House as a Cellar, which is the best way to preserve your Water for culinary Uses; then you may lay your Brick or Stone with Terrace, and it will keep Water very well. Or you may make a Cement, to joyn your Brick or Stone withal, with a Composition made of slacked sifted Lime, and Linseed Oyl, tempered together with Tow or Cotton-wool.

Or



Or you may lay a Bed of good Clay, and on that lay your Bricks for the Floor; then raise the Wall round about, leaving a convenient space behind the Wall to ram in Clay, which may be done as fast as you raise the Wall: So that when 'tis finish'd, 'twill be a Cistern of Clay, walled within with Brick, and being in a Cellar, the Brick will keep the Clay moist; (altho' empty of Water) that it will never crack. This (says Mr. Worlidge) I have known to hold Water perfectly well, in a shady place, tho' not in a Cellar. Thus in a Garden or other Place, may such a Cistern be made in the Earth, and cover'd over; the Rain-water being convey'd thereto, by declining Channels running to it. Also, in, or near Houses, may the Water that falls from them be conducted thereto.

### Clamp.

1. *What* ] A Clamp is a kind of Kiln built above Ground (of Bricks unburnt) for the Burning of Bricks.

2. *How made, and how Bricks are burnt in it* ] An ancient and experienced Workman, that has made and burnt many Thousands of Bricks tells me, That they build their Clamps much after the Method that the Arches are built in Kilns, viz. With a Vacuity betwixt each Brick's breadth, for the Fire to ascend by; but with this difference, that instead of Arching they *truss over*, or *over span*, as they phrase it, i. e.

they lay the end of one Brick about half way over the end of another, and so, 'till both sides meet within half a Brick's length, and then a bounding Brick at the Top finishes the Arch. They make the Mouth, (where the Fire is to be put in) about  $2\frac{1}{2}$  Foot wide, and about 3 Foot high, and then they begin to truss over, which they do for 3 Bricks in height; which with a bounding Brick on the Top, will close up the Arch. But after they have begun, make the Place to receive to the Fuel (before it is closed at the top) they fill it almost full with Wood, and upon that lay Sea-coal; then being over-span'd like an Arch, on all the Surface they strew Sea-coal, and then they lay another Course of Bricks the other way, laying them at a little distance from one another, and strewing Sea-coal upon them: And thus they continue, laying one Course one way. and the other another (and strewing Sea-coal betwixt each Course) 'till they come to 8 or 10 Foot high, according as the Clamp is to be for bigness. This being done, they fire the Wood, and that fires the Coal; which being all burnt out, the whole Clamp of Bricks is burnt.

### Clamp-nails.

See Nails. N. 3.

### Clasp-nails.

See Nails. N. 4.

*Cleaving.*

*Clearing.*

Of Laths, Pales, Shingles, and Timber. See *Laths, Pales, &c.*

*Cleer-story-window.*

See Window. N.

*Clench-nails.*

See Nails. N. 5.

*Clinkers.*

Those Bricks are so call'd by some which (having naturally much Nitre, or Salt-peter in them, and lying next the Fire in the Clamp, or Kiln,) by the Violence of the Fire are run, and are glazed over.

*Cloister.*

A close and separate Habitation, where Friars, Monks, and Nuns live retir'd from the World. Also a long place cover'd with a Floor, or Platfond, supported by Pillars. See P. Architrave. N. 2.

*Closet.*

A general Name for any very small Room. The Contrivance of Closets in most Rooms, now so much used (and so useful) is one great

## Improvement of Modern Architecture.

*Clout-nails.*

See Nails. N. 6.

*Clout-brads.*

See Brads. N.

*Cockle-stairs.*

As Winding-stairs. See Stair-case. N. III.

*Coins.*

As Quoins.

*Colier.*

As Cincture.

*Collorino.*

See Capital. N. 2.

*College.*

A Place set apart for the Society, and Cohabitation of Students.

*Collar-beam.*

A Beam fram'd cross betwixt two principal Rafters.

Column.

### Column.

1. *What.*] A Column is a kind of round Pillar, compos'd of a *Base*, a *Fust* or *shaft* and a *Capital*, and serves to support the *Entablement*. The Column is different in the different Orders, being capable of a great number of Variations, with regard to its Matter, its Construction, Form, Disposition and Use. The Word comes from the Latin *Columna*, which *Vitruvius* tells us was form'd from *Columnen*, a Prop or Support.

2. *Parts.*] Every Column (in the largest Sense) consists

of seven principal Parts, *viz.* Pedestal, Base, Body, Capital, Architrave, Frieze, and Cornice; each of which shall be handled in their proper Places of the Alphabet.

3. *Kinds.*] Architects reckon five Orders or Kinds of Columns, *viz.* Tuscan, Dorick, Ionick, Corinthian, and Roman Composite, or Compound Order. I shall ( here ) say something to each of these, in their Order.

4. *Tuscan.*] The whole height of this Column, and height of each principal Part thereof, according to several Authors, is, as in the following Table.

*Authors*



Au- thors	Whole Pede- height. <i>Pal.</i>	Base	Body.	Capi- tal.	Archi- trave.	Frieze.	Cornish
Names	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.
Vitru- vius	11 5 2	20 0	30 6	0 0	30 0	30 0	03 0
Vig- nola	11 5 2	20 0	30 6	0 0	30 0	30 0	35 0
Pal- ladio	10 15 1	0 0	30 6	30 0	30 0	35 0	26 0
Scam- mozzi	11 15 1 52 $\frac{1}{2}$	0 0	30 6	30 0	30 0	31 $\frac{1}{2}$	0 41 0

Note, (1.) That in this, and the four following Tables of the height's of Columns, and their Parts; I have taken pains to reduce all my Author's Dimensions to *Modules* and *Minutes*; reckoning a Module the Diameter of the Body of the Column, just above the Base; and a Minute the 60th part of a Module. (2.) That the height of the Body of a Column, is reckon'd from the top of the Base, to the top of the Astragal under the Capital. 5. *Dorick*.] The whole height of this Column, and the height of each principal part thereof, according to several Authors, is as in this Table.

Au- ors ames	Whole Pede- height stal.		Base		Body.		Capi- tal.		Archi- trave.		Frieze.		Cornish	
	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.	
Vitru- vius	12	40 2	40	0	30	7	0	0	30	0	30	0	45	0 40
Vig- nola	12	40 2	40	0	30	7	0	0	30	0	30	0	45	0 45
Palla- dio	13	0 2	20	0	30	7	45	0	30	0	30	0	45	0 35
Scam- mozzi	12	58 2	26	0	30	7	30	0	30	0	35	0	45	0 42

6. *Ionick*] The whole height thereof, according to several of this Column, and the height of each principal part thereof, according to several Authors, is as in this Table.

Au- thors	Whole height	Pede- stal	Base	Body	Capi- tal	Archi- trave	Frieze	Cornish
Names	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.	Mo. Mi.
Vitru- vius	14 15	3 00	3 08	10 00	20 00	37 $\frac{1}{2}$ 0	30 0	52 $\frac{1}{2}$ 0
Vigno- la	14 15	3 00	3 08	10 00	20 00	37 $\frac{1}{2}$ 0	45 0	52 $\frac{1}{2}$ 0
Palla- dio	13 28	2 40	52 $\frac{1}{2}$ 7	40 00	27 $\frac{1}{2}$ 0	34 $\frac{1}{2}$ 0	27 0	46 $\frac{1}{2}$ 0
Scam- mozzi	12 33 $\frac{3}{4}$	2 30	3 07	30 00	18 $\frac{3}{4}$ 0	35 0	28 0	42 0

6. *Corint.*] The whole height thereof, according to several of this Column, and the Authors, is as in this Table.  
height of each principal part

Au- thors Names	Whole height.		Pede- stal.		Base.		Body.		Capi- tal.		Archi- trave.		Frieze.		Cornish	
	Mo.	Mi.	Mo.	Mi.	Mo.	Mi.	Mo.	Mi.	Mo.	Mi.	Mo.	Mi.	Mo.	Mi.	Mo.	Mi.
Vitru- vius	16	0	3	30	0	3	08	20	1	10	0	30	0	37 $\frac{1}{2}$	1	0
Vig- nola	16	0	3	30	0	3	08	20	1	10	0	45	0	45	1	0
Pal- ladio	13	54	2	30	0	3	07	55	1	5	0	36	0	28	0	50
Scam- mozzi	14	42 $\frac{1}{2}$	2	30	0	3	08	5	1	10	0	39	0	51 $\frac{3}{4}$	0	46 $\frac{3}{4}$

8. *Dorick.*] Roman *Composita* height of each principal part  
or *Compound.*] The whole height thereof, according to several of this Column, and the Authors, is as in this Table.

Au- thors Names	Whole height.		Pede- stal.		Base		Body.		Capi- tal.		Archi- trave.		Frieze.		Cornish	
	Mo.	Mi.	Mo.	Mi.	Mo.	Mi.	Mo.	Mi.	Mo.	Mi.	Mo.	Mi.	Mo.	Mi.	Mo.	Mi.
Vitru- vius	16	6 $\frac{1}{2}$	3	30	0	3	08	20	1	10	0	52 $\frac{1}{2}$	0	52 $\frac{1}{2}$	0	52 $\frac{1}{2}$
Vig- nola	16	0	3	30	0	3	08	20	1	10	0	45	0	45	1	0
Palla- dio	15	20	3	20	0	3	08	25	1	5	0	45	0	30	0	45
Scam- mozzi	15	20	3	20	0	3	08	25	1	5	0	40	0	32	0	48

9. Of *Diminishing*.] Columns of every Order must be so formed, that the *upper* part of the Body be less than the *lower*; which diminishing, must be more or less, according to the Proportion of their Heights; and is to begin from one third part of the whole Shaft upwards, (*i. e.* the lower third part is to be of an equal Bigness; ) which *Philander* prescribes, (by his own precise measuring of ancient Columns) as the most graceful Diminution. And for the Quantity to be diminished, Architects lay down this Rule. —

That the  $\left\{ \begin{array}{l} \text{Tuscan} \\ \text{Dorick} \\ \text{Ionick} \\ \text{Corinthian} \\ \text{Compound} \end{array} \right\}$  Column, be  $\left\{ \begin{array}{l} \frac{1}{4} \\ \frac{1}{5} \\ \frac{1}{6} \\ \frac{1}{7} \\ \frac{1}{8} \end{array} \right\}$  part

smaller at the Top, just under the Capital, than below, just above the Base, *i. e.* the Diameter of

the Top, of the  $\left\{ \begin{array}{l} \text{Tuscan} \\ \text{Dorick} \\ \text{Ionick} \\ \text{Corinthian} \\ \text{Compound} \end{array} \right\}$  Column, is  $\left\{ \begin{array}{l} \frac{3}{4} \\ \frac{4}{5} \\ \frac{5}{6} \\ \frac{6}{7} \\ \frac{7}{8} \end{array} \right\}$  of

the Diameter of the Column below.

### Colours.

The principal Colours us'd in painting of Houses, &c. shall be treated of in their proper Places.

### Composite Order.

See Column and Order.

### Compartition.

By this Term, Architects understand a *graceful* and *useful* Distribution of the whole Ground-plot of an Edifice, into Rooms of Office, and of Reception, or Entertainment.

### Compartment,

In *Architecture*, is a particular Square (for an Inscription, or some other Device) marked out in some ornamental Part of a Building.

### Concamerate.

To make an Arched-Roof; as in Vaults, &c. to Arch over.

### Conclave,

In *Architecture*, is a Closet, or Inner-Chamber.



*Conducts.*

Sewers, or Gutters, to convey away the Suillage of a House. In these (says Sir Henry Wotton) Art should imitate Nature, in separating those ignoble Conveyances from the Sight; and (where there wants a running Water.) should place them in the most remote, and lowest part of the Foundation, with secret Vents passing up through the Walls, (like a Tunnel) to the wide Air; which all *Italian* Artists commend for the Discharge of noisome Vapours; tho' elsewhere, to my Knowledge, little practised.

*Conges,*

In *Architecture* are the Rings, or Ferrils, heretofore us'd in the Extremities of Wooden-pillars, to keep them from splitting, afterwards imitated in Stone-work.

*Console.*

From the French *Consolider*, to close up is an Ornament cut upon the Key of an Arch, which has a Projecture or Jetting, and on Occasion serves to support little Cornices, Figures, Busts, and Vases.

*Contour.*

The Out-line of any Member in *Architecture*; as that of a Base, a Cornice, or the like; a French Word. See *Profile*.

*Contignation.*

A Story in Building. In Latin, *Contignatio* signifies the laying of Rafters together.

*Contramure.*

In *Architecture*, is an Out-wall, built about the Wall of a City.

*Copeing of Walls.*

1. *What.*] The Copeing of a Wall is the Top, or Cover of it, made sloping to carry off the Wet.

2. *Price*] I have known Brick-walls (of  $1\frac{1}{2}$  Brick thick) coped with Stone, for 4d per Foot, lineal, (or running) Measure; the Workman drawing the Stones into this Price.

3. *Drawing of Stones, for-*] I have known 1d. per Foot given for drawing the Stones for Copeing of Walls.

*Corbeilles.*

From the Latin *Corbis* (a Basket) is a Piece of carv'd Work in the Form of a Basket full of Flowers or Fruits, serving in *Architecture* to finish some Ornament.

*Corbel.*

A short piece of Timber laid into a Wall, with its End sticking out some 6 or 8 Inches, more or less, according as the Occasion requires: The under-side of the End so sticking out, is sometimes cut into the Form

Form of a Boultin; sometimes of an O-G, sometimes of a Face, and sometimes of other Forms, according to the Fancy of the Workman; the upper-side is flat and plain. *Corbels* are commonly placed (for strength-fake) immediately under the middle of Semi-girders of a Plat-form, and sometimes under the Ends of the Camber-beams; but then they are commonly placed a Foot or two below the Beam, and a piece of Timber stands upright (close by the Wall) from the Corbel to the Beam.

### *Corbels.*

Holes left in the Walls of ancient Churches, &c. for Images to stand in.

### *Corinthian Order.*

See *Column* and *Order*.

### *Corner-tiles.*

See *Tiles* N. V.

### *Corner-stones.*

1. *What.*] Are two Stones, (commonly of *Rigate*, or *Fire-stone*) of which there stands one in each Jamb of a Chimney. Their Faces are hollow in the Breadth, being a certain Sweep of a Circle. The Breadth of each Stone is equal to the Breadth of the Jamb; and their Height reaches from the Hearth to the Mantle-tree.

2. *Price.*] I have bought of these Stones in *London* for 20 s per Pair.

### *Cornice.*

Comes from the Latin *Coronis*, a Crowning, and makes the third and uppermost Member of the *Entablement*, which is different in the several Orders. The Word *Cornice*, however, is applied to every Prominent or jetting Member that *crowns* any Body; and thus we say the *Cornice* of a Pedestal and the like. *Cornices* are also placed on the Top of Wainscot, and under the Eaves of Houses, &c.

2 *Kinds.*] There are as many kinds of *Cornices* as there are Orders of Columns, viz *Tuscan*, *Dorick*, *Ionick*, *Corinthian*, and *Composite*; to which may be added, *Plain*, *Cantalliver*, *Modillion*, and *Coveing* *Cornices*; Of all which I shall treat in their Order.

3. *Tuscan.*] According to *Vitruvius*, the whole Height of the *Tuscan* cornice is  $\frac{1}{2}$  a Module; which Height being divided into four grand Divisions, the uppermost of them goes to the *Boultin*, and *Fillet* under it; and this Division being sub-divided into four Parts, three of them go to the *Boultin*, and one to the *Fillet*. The two next grand Divisions go to the *Corona*, or *Crown*, (which is flat and plain) and the lowermost grand Division goes to the *Cimatium*; which being again divided into three parts, the uppermost of them goes to the *Fillet*, and the other two to the *Cima* or O-G. The Projection of the whole *Cornice*, (as also of each Member there-

of,) he makes to be equal to its Height; and the under-side of the Corona he divides into 11 Parts, whereof he gives 2 to the *Fillet*, and 1 to the *Denticle*, and so alternately; for 'tis fitting (say he) to have 3 as deep as they are large.

According to *Scamozzi*, the whole Height of this Cornice is 39 Minutes, and the Height of each particular Member thereof (beginning at the top, and descending orderly), is as follows; The upper *List*, or *Plint* of the Cornish, 3 m. the *Supercilium*, *List*, *Tinea*, or *Eye-brow*  $1\frac{1}{2}$  m. the upper *Cima*, or O-G. 8 m. the *List* under it  $1\frac{1}{2}$  m. the *Corona*, or *Crown*  $9\frac{3}{4}$  m. the *List*,  $1\frac{1}{2}$  m. the *Scima*, or greater O-G 6 m. (here's  $1\frac{1}{2}$  m left betwixt, for the Depth of the *Dentils*) the *Supercilium*, or *List*,  $1\frac{1}{4}$  m. the *Cimatium* or little O-G 5 m. the *List* 2 m

*Palladio* makes the whole Height of this Cornice 44 m. whereof the *List* at the Top is  $3\frac{1}{2}$  m the *Scima Recta* 10 m. the *List* under him  $2\frac{1}{2}$  m the *Corona* 10 m. the *Boulton* 9 m. the *List*  $1\frac{1}{2}$  m and the *Carvetto*, or *Hollow*  $7\frac{1}{2}$  m

4. *Dorick*] *Vitruvius* makes two different Fashions of *Dorick* Cornices; the whole Height of one of 'em is  $\frac{1}{2}$  a Module, which divided into two grand Divisions, one of them (*viz* the upper One) is again divided into 8 Parts, of which 1 part goes to the *List* at the top, and the other 7 to the O-G The other grand Division is subdivided into 4 parts, of which the uppermost, and

lowermost parts go to the 2 *Cimatiums*, and the 2 middle Parts go to the *Corona*, the *List* of each of those *Cimatium*'s is  $\frac{1}{2}$  of the whole *Cimatium*. The whole Height of the other fashion'd Cornice is 40 m. which divided into 9 Parts. 2 shall go to the 2 *Facia*'s, 1 to the *Thorus*, or *Boulton* above 'em, 2 to the *Modillions* above that, 2 to the *Crown*, and 2 to the *Cima*, or O-G at the top. The *Modillions*, as also the *Crown* being divided, each into 3 Parts, one of 'em shall go to their respective *Cimatium*'s. of which their *Lists* are each  $\frac{1}{3}$  of the whole.

According to *Scamozzi*, the whole Height of this Cornice is 42 m. whereof the *List* at the Top is 2 m. the great O-G 7 m. the *List* 1 m. the little O-G 3 m. the *Corona* 8 m. the *List* 1 m. the *Casement* 2 m. the *Boulton* 5 m. the *List* 1 m. the *Square* 7 m the *List* 1 m. and the *Boulton* 4 m.

*Palladio*, in his verbal Description of this Cornice, makes the whole Height of it to be 35 m but in his Figure 'tis but  $33\frac{1}{4}$  m. of which the *List* at the Top is  $2\frac{1}{4}$  m. the *Scima Recta*, or O-G  $6\frac{3}{4}$  m. the *List* 1 m the *Scima Reversa*  $3\frac{1}{4}$  m. the *Corona* 8 m. the *Ovolo*, or *Boulton* 6 m. the *List* 1 m. and the *Casement* at the bottom 5 m.

5 *Ionick*.] The whole height of this Cornice, according to *Vitruvius*, is about  $52\frac{1}{2}$  m. He describes two fashion'd Cornices in this Order; in one of them he divides the whole Height into 11 parts, the two uppermost of which



go to the *Cimatium*, and the *Boultin* under it ; and this Space being sub-divided into 6 parts 2 of them go to the *Fillet* of the *Cimatium*, 3 to the O.G, and 1 to the *Boultin*. The next two grand Divisions go to the *Corona*. The next 3 grand Divisions go to the *Cartoufes*, and the *Cimatium* over 'em ; and this Space being divided into 5 Parts, 1 of 'em makes the *Cimatium*, of which the *Fillet* is  $\frac{1}{3}$  of the whole. Then  $1\frac{1}{2}$  of the next grand Division goes to the *Boultin*, and *Fillet* over it, of which the *Fillet* is  $\frac{1}{7}$  part of the whole. Again,  $1\frac{1}{2}$  of the next grand Division goes to the *Casement*, and *Fillet* over it, of which the *Fillet* is  $\frac{1}{4}$  of the whole. And the last grand Division goes to the *Cimatium*, of which the *Fillet* is  $\frac{1}{3}$  part of the whole. In the other fashion'd Cornice, he divides the whole Heighth into 6 Parts, the uppermost of which goes to the O.G, whereof its *Fillet* is  $\frac{1}{6}$  part, the next grand Division being sub-divided into 3 parts, the uppermost of 'em goes to the *Cimatium*, (of which its *Fillet* is  $\frac{1}{3}$  part,) and the other two to the *Corona*. The next two grand Divisions are sub-divided into 5 Parts, the uppermost of which goes to the *Cimatium* (of which its *Fillet* is  $\frac{1}{3}$  part) and the other 4 to the *Cartoufes*. The next grand Division being sub-divided into 4 Parts, 3 of them go the *Boultin*, and 1 to the *Fillet* under it. And the last grand Division being sub-divided into 4 parts, 3 of 'em go to the *Casement*, and 1 to the *Cima-*

*tium*, of which its *Fillet* is  $\frac{1}{7}$  part.

*Scammozzi* make the whole Heighth of this Cornice 42 m. whereof the *List* at the Top is 2 m the *Scima Recta*  $5\frac{1}{2}$  m the *List* 1 m. the *Scima Reversa*  $2\frac{1}{2}$  m the *Corona*  $6\frac{1}{2}$  m. the *Scima Reversa*  $2\frac{1}{2}$  m. the *Cartoufes* 7 m. the *Boultin* 4 m the *List* 1 m. the *Square* 5 m. the *List* 1 m. and the *Boultin* 4 m.

*Palladio* makes the whole heighth of this Cornice  $46\frac{1}{2}$  m whereof the *List* at the top is  $2\frac{1}{2}$  m. the *Scima Recta* 7 m. the *List*  $1\frac{1}{4}$  m. the *Scima Reversa*  $3\frac{1}{2}$  m the *Corona* 8 m. the *Scima Recta* over the *Modillions*  $3\frac{1}{4}$  m. the *Modillions*  $7\frac{1}{2}$  m the *List* 1 m the *Ovolo*, or *Boultin* 6 m. the *List*  $1\frac{1}{2}$  m. and the *Cavetto*, or *Hollow* 5 m.

6. *Corinthian*.] The whole Heighth of this Cornice, according to *Vitruvius*, is about 1 Module. He describes two different fashion'd Cornices in this Order ; in one of which he divides the whole Heighth into 5 Parts, the uppermost of which goes to the O.G, of which its *Fillet* is  $\frac{1}{6}$  part. Then  $1\frac{1}{4}$  of the next grand Divisions goes to the *Corona* and *Cimatium* over it, of which space the *Cimatium* is  $\frac{1}{3}$  part, and its *Fillet*  $\frac{1}{3}$  of that. Then  $1\frac{3}{4}$  of the next grand Divisions goes to the *Modillions*, and *Cimatium* over them, of which space the *Cimatium* is  $\frac{1}{7}$  part. And the last grand Division goes to the *Bultin*, and *Fillet*s over and under it ; and this being divided into 3 parts, the lowermost goes to the *Fillet*, and the other two being again divided into 6 parts, 5 of them go to

the *Boultin*, and the other to the *Fillet* over it; in the other fashion'd Cornice, he divides the whole Heighth into 9 parts, of which the two uppermost being divided into 4 parts, 3 of 'em go to the O G, (whose *Fillet* is  $\frac{1}{2}$  of the whole) and the other to the *Cimatium* over the *Corona*, (whose *Fillet* is  $\frac{1}{2}$  of the whole.) The next two grand Divisions go to the *Corona*. The next two grand Divisions go to the *Modillions*, and the *Cimatium* over 'em,  $\frac{1}{2}$  of this space goes to the *Cimatium*, (whose *Fillet* is  $\frac{1}{2}$  of the whole *Cimatium*) and the rest to the *Modillions*. The next two grand Divisions go to the *Boultin*, and *Fillet* over and under it, which *Fillets* are each  $\frac{1}{2}$  of the whole. And the last grand Division goes to the *Cima* at the foot of the Cornice

According to *Scammozzi*, the whole Heighth of this Cornice is 46<sup>3</sup> m. whereof the *List* of the *Scima Recta* is 2 m. the *Scima Recta* 6 $\frac{1}{2}$  m. the *List* of the *Scima Reversa* 1 m. the *Scima Reversa* 3 $\frac{1}{4}$  m. the *Half-round* 1 $\frac{1}{2}$  m. the *Corona* 7 $\frac{1}{2}$  m. the *Cimatium* 3 $\frac{1}{2}$  m. the *Modillions* 8 $\frac{1}{2}$  m. the *List* 1 m. the *Boultin* 5 m. the *List* 1 m. and the *Scima* 5 m.

The whole Heighth of this Cornice, according to *Palladio*, is 50 m. whereof 2 $\frac{1}{2}$  m. goes to the *List* of the *Scima Recta*; the *Scima Recta* is 8 $\frac{1}{3}$  m. the *List*  $\frac{2}{3}$  m. the *Scima Reversa* 3 m. the *Corona* 7 $\frac{1}{2}$  m. the *List* of the O G over the *Modillions*  $\frac{2}{3}$  m. the O G 2 $\frac{2}{3}$  m. the *Modillions* 8 $\frac{1}{2}$  m. the *Boultin* 4 $\frac{1}{2}$  m. the *List* 1 m. the *Boultin*

5 $\frac{1}{2}$  m. the *List* 1 m. and O-G 4 $\frac{1}{2}$  m.

7. *Roman Composita*, or *Compound*.] The whole Heighth of this Cornice, according to *Vitruvius*, is equal to the Diameter of the Column above, which is about 52 $\frac{1}{2}$  m. He describes two different fashion'd Cornices in this Order; one of which he divides into 2 Parts, the uppermost of which goes to the O-G, (whose *Fillet* is  $\frac{1}{7}$  of the whole,) and the undermost to the *Corona* and *Cimatium* over it; and this Space being divided into 4 parts, 3 of them go to the *Corona*, and one to the *Cimatium*, whose *Fillet* is  $\frac{2}{3}$  of the whole *Cimatium*.

*Scammozzi* makes the whole Heighth of this Cornice 48 m. and *Palladio* 45 m. but for the Heighth of each particular Member, they leave us very much in the dark; for according to either of them the Sum of the Particulars will never make the whole Heighth; and besides, *Palladio* sets down no Dimensions to several of the Members of this Cornice. So that I think, a Man is but little the wiser for what any of these Authors say of this Cornice.

8. *Cantaliver*.] Workmen tell me, that those are call'd *Cantaliver-cornices*, that have *Cantalivers* under them. See *Cantalivers* N. 1.

9. *Modilion*.] Workmen tell me, That *Modilion* cornices are such as have *Modillions* under them. See *Modillions*.

10. *Coveing*.] Workmen tell me, That they call that a *Coveing-cornish*, which has a great

great *Casement*, or *Hollow* in it, which is commonly lathed and plaister'd upon *Compass*, *Sprockets*, or *Brackets*.

11. *Price*] Some *Cornices* (says Mr. *Leybourn*) are valued by the piece, dearer, or cheaper, according to their *Large-ness*, *Goodness* of the *Stuff*, and *Curiosity* of *Workman-ship*: Others are measur'd, and rated by the *Foot Running mea- sure*, i. e. by the *Number* of *Feet* in length only. *Experi-enced Carpenters* tell me, That for making of plain *Cornices* (without any *Carving*) under the *Eaves* of a *House*, they com- monly have 1 s per *Foot*, *Run-ning-measure*. Mr. *Wing* tells us, That *Cornices* are valu'd according to their *Nature* and *Bigness*; a *Modillion-cornice* (of *Free-stone*) of 18, or 20 *Inches* thick, is worth (says he.) 5 or 6 s. per *Foot*, *Run-ning-measure*. He also tells us, (in *Joiners Work*.) That a *Modillion-cornice*, with its carved *Work*, is worth 7 s. per *Foot*. And a plain *Modillion-cornice* of 12, or 14 *Inches* (says he) will be worth 3 s 6 d. or 4 s. per *Yard*, *running-measure*. A *Brick-cornice*, (as some *Workmen* tell me) 2 s. 6 d per *Foot*.

*Corona*, *Coronis*, or  
*Crowning*.

These Words are indiffe- rently applied to any Thing that finishes an Ornament in *Architecture*; as for In- stance to a *Cornice* or *Pediment*, &c.

*Corfa*.

This Word, as well as *Fascia* and *Tenia*, in *Vitruvius*, signifies what we call *Plat-band*. See *Plat-band*.

*Coveing*.

1. *What*. See *Cornice*. N. 10. Also, *Workmen* tell me, That *Coveing* is also used in this Sense; viz. When *Houses* are built projecting forth over the *Ground-plot*, and that is (as commonly 'tis) turn'd with a *Quadrant* of a *Circle*, (or *Semi-arch*) of *Timber*, which is lathed and plaister'd; (under which *People* may walk dry; as 'tis much us'd at *Tun-bridge-Wells*, on the upper *Walks*;) I say, such *Work* is commonly call'd *Coveing*.

2. *Price*.] Mr. *Wing* (in his *Geodetes Practicus Rederius*) says, That the *Carpenter's Work* of *Coveing*, is worth 4 s per *Square*.

*Coussinet*.

The first *Stone* whence a *Vault* or *Arch* commences, is so call'd. The little *Cornice* or *Plinth* that crowns the *Peer* and supports the *Coussinet*, is call'd *Impost*.

*Crown*,

As *Corona*.

*Crown-post*,

Is that *Post*, which (in some *Buildings*) stands upright in the middle, between two prin-  
cipal



cipal Rafters, from which there goes Struts, or Braces to the middle of each Rafter. It is also call'd a King-piece, or Joggle piece.

### *Cross-garnets.*

See *Hinges*. N. 2.

### *Cross-grain'd.*

Timber is said to be cross-grain'd, where a Bough, or some Branch shoots out on that part of the Trunk of the Tree; for the Bough, or Branch shooting forwards, the Grain of that Branch shoots forward also, and so runs a-cross the Grain of the Trunk; and if it be well grown together, it will scarce be perceiv'd in some Stuff, but only in Working.

### *Cross-Multiplication.*

1. *What.*] Cross-Multiplication is the multiplying of Feet and Inches by Feet and Inches; or Feet, Inches, and 12th. parts of Inches, by Feet, Inches, and (12th) parts of Inches. 'Tis so call'd, because they multiply a-cross, as I shall shew how in the following Number. This way of Multiplication is much us'd by Workmen, in measuring their Work; but, I think,

none of'em are so nice, as to take their Dimensions to parts of Inches, except Glaziers.

2. *How perform'd*] Set the Multiplicand over the Multiplier, as is done in the following Examples, and then multiply as the Lines direct; observing to set down the particular Products under Feet, Inches, or Parts respectively, according to these Rules.

1. Feet multiply'd by Feet, produce Feet.

2. Feet by Inches, produce Inches.

3. Feet (by 12th) parts, produce parts.

4. Inches by Feet, produce Inches.

5. Inches by Inches, produce Primes, (or 12th) Parts (of an Inch.)

6. Inches by (12th) parts, produce seconds, or 12th parts of the 12th. part of an Inch.

7. Parts by Feet, produce (12th) parts.

8. Parts by Inches, produce Seconds.

9. Parts by Parts, produce Thirds, (or 12th. Parts of a Second.)

But *Note*, That in setting down the Products of each Denomination, (except the Feet) you must set down only the odd ones above 12, or 12's, carrying all the 12's as so many Unites to the next greater Denomination.

*Example 1.*

F. In.

Let it be required to Multiply 5—3 by

2 F. 4 In. set down the Numbers thus

F. In. 00
5—3—00
1—1—
2—4—0

Say 2 times 5 is 10 Feet 10—0—0—

Then 2 times 3 is 6 Inches 6—0—

Then 4 times 5 is 20 Inches, or 1 F. 8 In. 1—8—0—

And lastly, 4 times 3 is 12 parts, or 1 Inch. 0—1—0—

The whole Sum is 12—3 0

or 12 Feet and a quarter.

*Example.*

Let it be requir'd to Multi-Parts, (or a half) by 2 Foot,  
ply 5 Foot 3 Inches, and 6 4 Inches, and 6 Parts.

F. In. P. S. T

Set down the Numbers thus

Then I say,

5—3—5
1—1—1
2—4—6

2 times 5 Feet is 10—0—0—0—0—

2 times 3 Inches is 6—0—0—0—

2 times 6 Parts is 1—0—0—0—

4 times 5 Feet is 1—8—0—0—0—

4 times 3 Inches is 1—0—0—0—

4 times 6 Parts is 2—0—0—

6 times 5 Feet is 2—6—0—0—

6 times 3 Inches is 1—6—0—

6 times 6 Parts is 3—0—

The whole Sum is 12—6—9—9—0—

that is 12 Feet 6 Inches and  $\frac{3}{4}$  of an Inch, and  $\frac{3}{4}$  of a Twelfth part of an Inch.

*Cubicle.*

A Bed-chamber,

*Culinary,*

Of, or belonging to the Kitchen.

*Culvertail,*

As Dovetail.

*Cupola,*

In Architecture, is a small Room (either Circular, or Polygonal)

lygonal) standing on the very top of a Building ; some call it a Lanthorn.

*Cy-mace-macium,*

As *Cimatium*.

*Dado.*

SEE Capital. N. 2.

*Deals.*

Of Dressing.] Dressing of Deals, [*i. e.* rough-plaining them over with a Fore-plain, that they may dry,] is worth (says Mr. Wing.) 1 s. per score : and so I know some Workmen have ; tho' others tell me, they have known them done for 9 d. per score.

*Deal-floors.*

Of Laying.] The Laying of ordinary Deal-floors, [*i. e.* plaining, and joining 'em, &c.] is worth 5 s per Square. But if they are laid with Dove tail, or Key joynts, without Pins or Nails, some Workmen tell me, They have 10 s. per Square. And if the Workman find Deals, and lay them the ordinary way 'tis worth from 24 to 30 s per Square, according to the goodness of the Deals. But if the Deals are very good, and laid either with Doverail, or Key-joints, (without Nails, or Pins) 'tis worth 35 s. or 40 s. the Square. See Pl. Floors.

*Deck-nails.*

See Nails. N. 6.

*Dacor.*

This Word is perfect Latin, and signifies the keeping of a due Respect between the *Inhabitant* and *Habitation*. Whence *Palladio* concludes, That the *Principal Entrance* must never be regulated by any certain Dimensions, but by the Dignity of the Person that is to live in it ; yet to exceed, rather in the more. than in the less, is a Mark of Generosity, and may be excus'd with some noble Emblem, or Inscription, as that of the *Conti di Bavi-lacqua*, over his large Gate at *Verona*, (where perchance had been committed a little Disposition :) *Patet Janua, Cor-magis.*

*Denticles.*

Ornaments in a Cornice, cut after the manner of Teeth. (from *Dens*, a Tooth.) These are particularly affected in the *Doric Order*, and the Square Member wherein they are cut is called the *Denticule*, in Latin *Denticulus*.

*Diastyle.*

An Edifice, where the Columns are placed at the distance of three of the Diameters from one another.

*Diamond-glass.*

See Glass-quarry.

*Diamond.*



*Diamond-pavement.*

See Paving. N. 10.

*Die.*

This Term is applied to any square Body, as the *Trunk* or *Naked* of a *Pedestal*, which is that Part included between the *Base* and *Cornice* thereof

*Digging.*

Of *Measuring*] The digging of the Ground for Cellars, and for the Foundations of Buildings, is commonly done by the Yard solid, containing 27 solid Feet; and that is usually counted a Load. Therefore the Dimensions being given in Feet, multiply the length by the breadth, and the Product by the depth, dividing this last Product by 27, and the Quotient will give the Content in solid Yards.

*Diminishing.*

Of *Columns*.] See Columns. N. 9.

*Diptere.*

Among the Ancients, a kind of Temple or other Edifice encompass'd round with a double Row of Columns. It signifies in *Greek* two-wing'd The *Pseudo* (or false) *Diptere* was the same; excepting, that instead of the double Row of Columns, this was only encompass'd with a single one.

*Dogg-nails.*

See Nails. N. 7.

*Dome.*

Also a Cupola, a round piece of Architecture, (resembling the Bell of a great Clock) set upon the top of a Building, particularly upon Cathedral Churches, where it serves for the Bell-tower.

*Dorick-order.*

See Column, and Order.

*Doors.*

1. *What.*] Doors are those parts of a Building, that are serviceable for the Passage in and out of Persons.

2. *Situation of.*] First, see that the Doors of a House be as few in number, and as moderate in Dimensions, as may possibly consist with other due Respects: For in a word, *all Openings are Weaknings*. Secondly, That they do not approach too near the Angles of the Walls; for 'twere a most essential Solecism to weaken that part, which must strengthen all the rest: A Precept well recorded, but ill practised by the *Italians* themselves, particularly at *Venice*. Thirdly, Let the Doors, if possible, be right over one another, that the void may be upon the void, and the full upon the full; which will be a great strengthening to the whole Fabrick. Fourthly, Let them (if possible)

ble) be placed opposite to one another, in such manner, that one may see from one end of the House to the other ; which will not only be very graceful, but also most convenient, in respect 'twill cool the House in Summer, by letting the Air through the House, and in Winter to keep out the Wind, which way soever it sit. Fifthly, 'Tis not only Ornamental, but very secure to turn Arches over the Doors, which will discharge them in a great measure, from the Super-incumbent weight, which might otherwise press upon them too much

3. *Dimensions of.*] Inner-doors in large Buildings ought to be three Foot broad and upwards, and their heighth twice their breadth. And Inner-doors in lesser Buildings, ought never to be less than  $2\frac{1}{2}$  Foot broad. and  $5\frac{1}{2}$  Foot high.

4 *Price of.*] Doors made of plain whole Deal, and Rabited are for Stuff Nails, and Workmanship, valu'd at 3 *d.* or 4 *d.* the Superficial Foot ; the Workmanship only, about 2 *s.* or 2 *s.* 6 *d.* per piece ; as some Workmen tell me But double-doors, Batton'd, and made Wainscot Fashion, may be worth (for Workmanship and Materials) 7 *d.* the Foot, and for the Workmanship alone, about 4 *s.* or 5 *s.* per piece. Folding doors and Cases, (as some Workmen tell me) are worth about 20 or 30 *s.* per Pair ; and Balcony-doors and Cases, the same. Ordinary doors without Plaining, are worth making and hanging up, about 1 *s.* per

piece. In Stone and Brick-buildings, *Architrave-door Cases* are worth, according to the breadth of the Mouldings, 1 *d.* an Inch, *i. e.* if the breadth of the Moulding, (from the out-side to the inside of the Frame) by 9 Inches, 'tis worth 9 *d.* per Foot running-measure ; if 10 Inches, 10 *d.* per Foot ; and so proportionable, more or less. And *Frontish-doors* in great Buildings, with their Ornaments, as Pilasters, &c. are worth, (according to their Magnitude, and Variety of Workmanship included ) some 3 *l.* some 5 *l.* some more, to 10 or 20 *l.* per piece ; and perhaps more. See *Batten-door.* N. 2.

### *Dormant-tree.*

In Architecture is a great Beam lying cross a House. otherwise call'd a Summer. See Summer.

### *Dor-man mer,*

In Architecture is a Window made in the Roof of a House, it standing upon the Rafters. Dormers are commonly rated at, so much per piece, according to their bigness, &c.

### *Dorman-tiles.*

See Tiles. N. VIII.

### *Dor-tor-mitory.*

A Sleeping-place.

*Doucine.*

See *Cima*. It is an upright  
O-G.

*Dove-tails.*

A sort of Joynts, or Hinges, so call'd, because they resemble the Tail of a Dove, or Pigeon.

*Dove-tailing.*

In Architecture, is a manner of fastning Boards, (or any Timber) together, by letting one piece into another, in the Form of a Dove's Tail.

*Drag.*

In Architecture, a Door is said to drag, when in opening and shutting it drags upon the Floor.

*Dragon-beam.*

Dragon beams are 2 strong Braces, or Struts, that stand under a Bressummer, meeting in an Angle upon the Shoulder of the King-piece.

*Drapery.*

A Term in Architecture, and Painting, it being a Work wherein Cloaths are represented. Also as Cilery.

*Drip.*

This is call'd *Larmier* in French (in *English Weeper*) from *Larme* (a tear) and that from the Latin *Lachryma*. It is the bottom of the Corona, (the Corona is that large square Moulding immediately under the Cymaïse.) It is call'd *Larmier*, because the Rain-water is by means thereof forced to fall drop by drop on the Ground; dripping like Tears.

*Draught, or Draft.*

1. *What.*] A Draught, or Draft, is the Picture of an intended Building described on Paper; wherein is laid down (by Scale, and Compass) the devised Divisions, and Partitions of every Room, in its due proportion to the whole Building.

2. *Its Usefulness.*] As 'tis usual, so 'tis (also) very convenient for any Person before he begins to erect a Building, to have Designs, or Draughts drawn upon Paper, or Vellum; in which Draughts the Ground-plot, or Ichnography of each Floor, or Story, is delineated, and represented: As also the Form and Fashion of each Front, together with the Windows, Doors, and Ornaments, (if they design any) are to be shewn in the Orthographies, or Draughts of the Uprights.

Sometimes more Fronts than one are shewn perspectivevely in a Draught, and then 'tis call'd Scenography; but this is not easily understood, except by those



those that understand the Rules of Perspective. And therefore 'twill be more intelligible to the several Workmen, to have a Draught of each Front, in a particular Paper by it self; and also to have a Draught of the Ground-plot, or Ichnography of every Floor, or Story, in a Paper by it self; because many times the Conveniencies, or Contrivances in one Story, differ from those in another, either in the bigness of the Chimneys, or Divisions of the Rooms, some being larger in one Story than in another, and sometimes having more Chimneys in one Story than in another, &c.

All which things being well consider'd, and drawn on Paper, before the Building is begun; these Draughts will be a great Guide to the Workmen, and save them a great deal of time in contriving their Work; and besides there will be no need of Alterations, or tearing, or pulling the Building to pieces after 'tis begun; which, besides the Hindrance of the Procedure, makes the Building lame and deficient; nothing being so well done, when 'tis put up, and pull'd down, and set up again. as if it were well done at first. Besides, it makes the Workmen uneasy to see their Work, (in which they have taken a great deal of Pains, and used a great deal of Art) to be pull'd down again. See Building. N. II. 2.

The drawing of Draughts is most commonly the Work of

a Surveyor, tho' there be many Master-workmen that will contrive a Building, and draw a Draught, or Design thereof, as well almost (and better than some) Surveyors. But whoever makes a Draught of a Building, ought to be very well skill'd in the Theoretical Part of Architecture.

### *Drips.*

In Architecture, are certain kind of Steps (made on a flat Roof) to walk upon, a way of Building much us'd in *Italy*. The Roof is not quite flat, but a little rais'd in the middle; and those Steps, or Drips, lie each a little inclining to the Horizon.

### *Drops.*

In Architecture are an Ornament in the Pillars of the Dorick Order, underneath the Triglyphs, representing Drops, or little Bells.

### *Dutch Bricks.*

See Bricks. N. 5.

### *Eaves.*

**I**N Architecture, is the Margin of the Roof of a House; that part of the Roof that hangs over without the Walls.

*Eaves.*

*Eaves-lath.*

That thick Feather-edg'd-board, generally nail'd round the Eves of a House, for the lowermost Tiles, Slate, or Shingles to rest upon. Eaves-laths are commonly sold for 1 d.  $\frac{1}{2}$  or 2 d. a Foot, (running-measure) according as they are of goodness.

*Echinus.*

Is sometimes use to signifie the *Quarter Round*, but more commonly that part of it which includes the *Ovum* or Egg. It comes from the Greek *Echinos*, the Shell of a Chesnut.

*Eggs.*

See Anchors, and Quarter-Round.

*Elaboratory.*

A Place to work in; properly a Chymist's Work house, or Shop.

*Embossing.*

In Architecture, is a kind of Sculpture, or Engraving, wherein the Figure sticks out from the Plain whereon it is Engraven, and according as it is more or less protuberant, is call'd by the *Italians* *Basso Mezzo*, or *Alto rilievo*, and by the *English* *Bas-relief*, *Mean-relief*, or *High relief*.

*Embrasure.*

In Architecture, is the Enlargement that is made in a

Wall, on the inside of a Window, or Gate, to give the more Light, or for the more Convenience of the Gate, or Window.

*Entablement, or Entablature.*

By *Vitruvius* and *Vignola* is called Ornament, and signifies the *Architrave*, the *Freeze*, and the *Cornice* together. It is likewise call'd *Trabeation*, and is different in the different Orders. The word seems borrowed from the *Latin*, *Tabulatum*, a Ceiling, because we suppose the *Freeze* to be form'd by the Ends of the *Joysts* which bear upon the *Architrave*.

*Entresole.*

Sometimes call'd *Mezanine*, is a kind of a little Story, contrived occasionally at the top of the first Story, for the convenience of a Ward-robe, &c.

*Entry.*

In Architecture, is a Room design'd only (or chiefly) for *Passage* to and fro betwixt other Rooms, or from the outer Door into the House.

*Epistyle-tylium.*

As Frieze.

*Euribymia.*

A Term of Architecture, us'd by *Vitruvius*, by which he intends only That agreeable Harmony, that ought to be between

tween the length, breadth, and height of each Room in a Fabrick.

### *Eustyle.*

Is the best manner of placing Columns with regard to their Distance, which *Vitruvius* maintains to be of two Diameters and a Quarter. The word is compounded of the Greek *Eus*, well, and *Stylos* Column.

### *Eye-brow.*

As Lift, or Eillet. See Capital.

### *Eye,*

In Architecture, is the middle of an Ionick Volute, or Scrol, cut in the Form of a Rose.

### *Fabrick.*

1. **W**<sup>Hat</sup> ] A Church, a House, or any other Building.

2. Of *Censuring* ] I am desirous, (says Sir Henry Wotton) to shut up these Elements of Architecture with some methodical Directions for censuring of Fabricks already rais'd ; for indeed, without some way to contract our Judgment, which among so many Particulars, would be lost by Diffusion ; I should think it harder to be a good Censurer, than a good Architect ; because the *working part* may be helped by *Delibe-*

*ration*, but the *Judging* must flow from an *Extemporary Habit*. Therefore, (not to leave this last piece of Architecture without some Light,) I could wish him that comes to examine any noble *Work*, first of all to examine himself, whether the sight of many brave Things before (which remain like impressed Forms in his Mind.) have not made him think nothing *good*, but that which is the best ; for this Humour were too slowre. Next, before he settle any Opinion upon the Work, let him by all Means seek to inform himself of the Age thereof. And if he find the apparent Decays to exceed the Proportion of Time ; then let him conclude, That either the Materials were too slight, or that the Seat is naught.

Now, after these Premisses, if the Building be found to bear his Years well, then let him suddenly run backwards, (for the Method of *Censuring* is contrary to the Method of *Composing*) from the Ornaments, (which first allure the Eye) to the more *essential Members*, till at last he be able to form this Conclusion ; That the Work is Commodious, Firm, and Delightful ; which are the three capital Conditions requir'd in good Building, by all Authors, both ancient and modern. And this is, (as I may term it,) the most scientificall way of *Censuring*. There are two other ways which I must not forget. The first, which you may find in *Georgio Vassari*, before his laborious Work of the Lives of



of Architects,) is to pass a running Examination over the whole Edifice, according to the Properties of a well-shapen Man. As whether the *Walls* stand upright upon a clean Footing and *Foundation*; whether the *Fabrick* be of a beautiful Stature; whether for the *Breadth* it appear well burnished; whether the *principal Entrance* be in the middle of the Front, or Face; whether the *Windows*, (as our Eyes) be set in equal Number and Distance on both sides; and whether the Offices (like the Veins in our Bodies) be usefully distributed, &c. The second way you may find in *Vitruvius* himself, *Lib. 1. Cap. 2.* Where he summarily determines 6 Considerations, that accomplish this whole Art, *viz. Ordinatio, Dispositio, Eurythmia, Symmetria, Decor & Distributio*, each of which see in their proper Places.

### Face,

In *Architecture*, is any Member that has a great Breadth, and but small Projecture, as the Architrave in the Front of a Building.

### Face of a Stone.

By the *Face of a Stone*, Workmen mean that Superficies or Plain of the Stone that is to lie in the Front of the Work; which is very easily known when the Stones are scapt'd; for the *Face* is always opposite to the *Back*, and the *Back* goes rough as it comes from the Quarry. But in rough Stones,

Workmen generally choose to make one of those sides the *Face*, which in the Quarry lay perpendicular to the Horizon, and consequently the breaking (and not the cleaving) way of the Stone. For a clearer understanding of this, see *Stone*, N. 4.

### Facing.

Of *Timber Buildings with Brick.*] Some Workmen tell me, That they have sometimes faced Timber-buildings with Brick; which, say they, is thus done, — All betwixt the Timber, the Wall is a Brick's-length thick; (or a 9 Inch Wall,) and against the Timber but half a Brick, or  $4\frac{1}{2}$  Inch Wall. But Workmen do not approve of this way of facing of Timber-buildings, by reason the Mortar doth so extremely burn the Timber.

### Facia, or Fascia.

\*M. Perrault says, It signifies any flat Member; as the Band of an Architrave, &c. There are some who write it *Fasce*, grounded upon the Latin Word *Fascia*, a large Turban, which *Vitruvius* makes use of on the like Occasion. In short, it is no more but a broad List or Fillet. See *Fillet*. They are commonly made in Architraves, (see *Architrave*;) and in the Cornice of Pedestals, see *Pedestal*. In Brick-buildings, *Fascia's* are certain Juttings out of the Bricks, over the Windows of each Story, except the upper one. And these are sometimes plain, like

those of Columns ; but sometimes they are moulded ; which they very handsome : And this Moulding is commonly a *Scima-reversa* at the bottom, above which are two plain Courses of Bricks, then an Astragal, and lastly a Boul-tin, or as Workmen (by Corruption) call it a Boul-tiel, or Boltel. In Stone-buildings 'tis the same as in Brick, and they are also sometimes plain and sometimes moulded with a *Scima reversa* or O.G. The Price of *Fascia*'s, if the Workmen find Materials, is commonly about 10 *d.* per Foot Running-measure, and the Workmanship only about 6 *d.* or 8 *d.* per Foot. By the Word *Fascia*, (as also *Tania* and *Corfa*) in *Vitruvius*, is signified what we call Plat band. See *Plat-band*.

### *Feather-edg'd.*

Boards, or Planks, that are thicker on one Edge, than on the other, are call'd Feather-edg'd Boards, &c.

### *Felling of Timber.*

See *Timber*.

### *Fencing*

1. *With Pale.*] Some Workmen tell me, That for Pale-ing with 3 Rails, Cleft pails, Rails, and Posts, cleaving and setting up ; they have 3 *s.* 6 *d.* per Rod, felling the Timber and all. But then their Mate-rials are laid down to their hand.

2. *With single Rail and Posts.*] Some Workmen tell me, That Fencing with single Rail and Posts, Felling, Cleaving and setting up, is commonly done for 8 *d.* or 10 *d.* per Rod ; but then their Materials must be laid down to their hand, that they may have no carrying. Others tell me, That they have known it done for 4 *d.* 5 *d.* or 6 *d.* per Rod, Felling, Cleaving, and setting up ; but then the Fence must be cross a Field, or the like, where it is easie digging the Post-holes, (and where there is a pretty many Rods together,) and the Materials must also be laid down to their hand,) and not in Gaps, in Hedges, and the like, where 'tis difficult dig-ging, and but a little at a place ; for there, 'tis worth 8 *d.* 10 *d.* or 1 *s.* per Rod.

### *Fence-walls.*

Walls of Brick, or Stone, made round Gards, &c. See *Walls*, N. V.

### *Festoon.*

An Ornament of carv'd Work, in the Manner of a Wreath, or Garland of Flow-ers or Leaves twisted together, thickest at the middle, and sus-pended by the two Extremes, whence it hangs down perpen-dicularly. The Word *Festoon* may probably be derived from *Festus*, as being usually em-ploy'd on Festival Occasions.

*Fillet.*

Is any little square Moulding, which accompanies or crowns a larger.

*Fire-stone.*

1. *What*] *Rigate-stone*, commonly call'd *Fire-stone*, is a sort of *Stone* very good, (and much us'd) for *Chimney-fire Hearths*, *Ovens*, *Stoves*, &c

2. *Price*.] *Mr. Miller*, *Stone-cutter* in *Cold harbour, London*, tells me, That they usually sell *Fire-stone Hearths*, at 1 s. per Foot. And *Chimney-corner-stones* of *Fire-stones* at 20 s. per Pair. And *Blocks* to set up *Coppers*, each being about 3 Foot long,  $1\frac{1}{2}$  Foot broad, and 8 or 9 Inches thick, at 6 s 8 d per Piece.

*Flat-head-nails.*

See *Nails*. N.

*Flat-point-nails.*

See *Nails*. N. 9.

*Flemish-bricks.*

1. *What*] They are a sort of *Bricks* brought out of *Flanders*, and used for *Paving*; being much neater and stronger than common, or *Clay-bricks*. They are of a yellowish Colour, and each *Brick* is  $6\frac{1}{2}$  Inches long  $2\frac{1}{2}$  Inches broad, and  $1\frac{1}{4}$  Inch thick. Now, allowing  $\frac{1}{4}$  of an Inch for the *Joynt*, 72 of 'em will pave a *Yard Square*; but

if they be set edge-ways, then to pave a *Yard Square* will require 100 *Bricks*.

2. *Price*] They are commonly sold for 2 s. the Hundred.

*Flint Walls.*

See *Walls*. N. VII.

*Floors.*

1. *What*.] A *Floor* in *Architecture* is the under-side of a *Room* on which we walk. *Floors* are of several sorts; some are of *Earth*, some of *Brick*, some of *Stone*, and some of *Wood*. *Carpenters*, by the Word *Floor*, understand as well the fram'd *Work* of *Timber*, as the *Boarding* over it.

2. *Earthen*] *Earthen-floors* are commonly made of *Lime*, and sometimes (for *Floors* to make *Malt* on) of *Lime*, and *Brook-sand*, and *Gun-dust*, or *Anvil-dust* from the *Forge*; the particular *Method* of both which I must at present omit; but I cannot pass by that *Receipt* (given us by the *Ingenious Sir Hugh Plat*, *To make an Artificial Composition*, wherewith to make smooth, glistering and hard *Floors*, and which may also serve to *plaster Walls* with. Take, (says he) *Ox-blood*, and fine *Clay*, and tempering them well together, lay the same in any *Floor*, (or *Wall*) and it will become a very strong and binding *Substance*; as I have been told by a *Gentleman* and *Stranger*, who affirm'd to me, that the same is of great Use in *Italy*.



In

3. *Brick and Stone.*] These I shall refer to *Paving*. See *Paving* N. 1. to 9.

4. *Boarded.*] Concerning Boarded-floors, 'tis to be observ'd, that tho' Carpenters never Floor their Rooms with Boards till the Carcase is set up, and also enclos'd with Walls, lest the Weather should wrong the Flooring; yet they generally rough plane their Boards for Flooring, before they begin any thing else about the Building, that they may set them by to *season*; which they do thus. They lean them one by one on End a-flant, with the Edge of the Board against a *Balk*, (or, as 'tis call'd in some parts of *Suffex* a *Perch*;) somewhat above the Height of half the length of the Board, and set another Board in the same Posture on the other side of the *Balk*, so that above the *Balk* they cross one another; then on the first side they set another Board in that Posture, and on the second side another, and so alternately, till the whole Number of Boards are set on end: Being set in this Posture, there is left the Thickness of a Board between every board, all the length, but just where they cross one another, for the Air to pass through to dry and shrink them, against they have Occasion to use them: But they set them under some cover'd Shed, that the Rain or Sun comes not at them: For if the Rain wet them, instead of shrinking them, it will

swell them; or if the Sun shine fiercely upon them, it will dry them so fast, that they will *tear* or *shake* 'em, as they Phrase it, that is, in plain *English*, split or crack. They have another way to dry and season their Boards for Floors, *viz.* By laying them flat upon 3 or 4 *Balks*, each Board about the Breadth of a Board asunder, the whole Length of the *Balks*. Then they lay another Lay of Boards athwart upon them, each Board also the Breadth of a Board asunder; then another Lay athwart the last, and so till all are thus laid. So that in this Position also they lie hollow for the Air to play between them.

5. *Of Measuring*] Floors boarded are commonly measured by the Square (of 100 superficial Feet) by multiplying the Length of the Room in Feet, by the Breadth in Feet, and the Product is the Content in Feet; then measure the Chimney-ways, and Well-holes for Stairs by themselves, and deduct their Content in Feet from the whole Content in Feet, and from the Remainder cut off two Figures on the Right-hand and what remains on the Left-hand, is Squares, and what is cut off are odd Feet of the Content of Flooring in that Room.

6. *Price*] The *Framing* of Floors in ordinary Buildings, (says Mr. *Wing*) is worth 7 or 8 *s.* per Square, in great Buildings, 10 or 11 *s.* But several Workmen in *Suffex* tell me,  
That

That they commonly have but 4 s. per Square, for framing of Floors in ordinary Buildings. And some Workmen (in *Suffex*) tell me, That if they Frame the Joysts the whole Depth of the Girder, and pay for sawing the Timber, they have 9 or 10 s. per Square.

The Price of *Laying*, [*i e* Boarding] of Floors (says Mr. *Leybourn*,) is various, according to the Goodness of the Stuff, from 12 s. to 20 s. the Square; but if the Boards be found by the Builder, then they commonly allow for Plaining, Joynting, and laying of Boards, 4 or 5 s. per Square, besides Nails, of which 200 is a competent Allowance for one Square of Flooring. But some Workmen in *Suffex* tell me they will lay Deal-floors braded, and plain Joynts broken at every 4 or 5 Boards, for 3 s. per Square; and if they break Joynt at every Board, then 6 s. others say 6 s. 8 d. or 7 s. per Square.

Plaster-floors running, the Workman finding all, is worth, (says Mr. *Wing*) 1 s. 4 d. per Yard but the working part only is worth 4 d. 5 d. or 6 d. per Yard. See Pl. Deal-floors.

### Flooring-brads.

See Brads. N. 4.

### Flutes, Or Fluteings.

In *Architecture*, are the Hollows made in the Body of a Column. The Dorick, Ionick, Corinthian, and Composite Columns are commonly fluted,

or made with Flutes or Hollows, running along the Body of the Column, from the Base to the Capital. Each Column has 24 Flutes, and each Flute is hollow'd in, exactly a quarter of a Circle. In the Dorick-Column, the Flutes join together, without any Inter-space; but in the Ionick, Corinthian, and Composite Columns, there runs a List betwixt every two Flutes. The Account given by M. *Perrault* of *Fluteings*, is as follows. They are certain, perpendicular Cavities, cut length-wise around the Shaft of the Column, and rounded at the two Extremes. The French call them *Cannelures*, Channelings. Their Number was at first limited to 24 in the Ionic, and 20 in the Doric Order; but that Limitation, some of our modern Architects have taken the Liberty to dispense with. These Cavities are frequently fill'd up with something not unlike a Flute, whence 'tis probable they take their Names: as the French Term *Cannelures*, seem borrowed from the Cavities themselves; which resemble Canals. *Vitruvius* tells us, they were at first intended to represent the Folds of a Garment.

### Flyers,

Are Stairs made of an Oblong-square, whose fore and back sides stand parallel to each other; and so are their Ends; the second of these Flyers stands parallel behind the first, the third behind the se-

cond. and so of the rest. If one Flight carry them not to the intended height, then there is a broad Half-pace, from whence they begin to fly again, as at the first.

### *Foliage,*

In Architecture and Sculpture is Work wrought in Branches and Leaves.

### *Foot pace,*

Or as some call it, *Half pace*, is a part of a pair of Stairs, whereon, after 4, or 6 Steps, you arrive to a broad Place, where you may take two or three paces before you ascend another step, thereby to ease the Legs in ascending the rest of the Steps.

### *Fornication.*

In Architecture, is an Arch-ing, or Vaulting.

### *Foundation.*

1. *What*] The lowest part of a Building, (generally laid under Ground) upon which the Walls of the Superstructure are rais'd. This word is also sometimes taken for a publick Building, erected for pious Uses.

2. *Digging for, and laying of.*] Concerning Digging for, and laying of the Foundation of a Building, there are several things to be well consider'd and taken notice of; the most material of which I shall ex-

tract from the best Architects, Ancient and Modern.

(1.) *This*, (says that great Architect, Sir Henry Wotton,) requires the exactest Care; for if the Foundation happen to dance, 'twill marr all the Mirth in the House: Therefore, that we may found our Habitation firmly, we must first examine the *Bed of Earth*, upon which we build; and then the *Underfillings* or *Substruction*, as the Ancients call'd it. For the former we have a general Precept in *Vitruvius*, twice repeated by him, as a Point indeed of main Consequence. First, *Lib. 1. Cap. 5.* And again, *lib. 3. cap 3.* in these words, (as *Philander* does well correct the vulgar Copies) *Substructionis Fundationes fodiantur*, (says he) *si queant invenire ad solidum, & in solido* By which words I understand him to commend to us, not only a diligent but even a jealous Examination what the Soil will bear; advising us, not to rest upon any Appearance of Solidity, unless the whole Mould, thro' which we cut, hath likewise been solid: In Order to which, Architects ought to use their utmost Diligence; for of all Errors that may happen in Building, those are the most pernicious which are committed in the Foundation; because they bring with 'em the Ruin of the whole Fabrick; nor can they without great Difficulty be amended.

(2) If the *Foundation* happen to be on a Rock, or hard Gravel; these (without digging, or other artificial Helps,) are of



of themselves excellent Foundations, and most fit to uphold the greatest Buildings.

(3) If the Place where you Build, be firm solid Earth, you may dig for the Foundation, so far as a discreet Architect shall think requisite for the Quality of the Building, and Soundness of the Earth; but how deep we should dig, *Vitruvius* has no where to my Remembrance determin'd, as perhaps depending more upon *Discretion* than *Regularity*, according to the weight of the Building; yet *Palladio* has fairly ventur'd to reduce it to Rule, allowing for the *Cavazione*, (as he calls it, *i. e.* the hollowing of the Earth for the Foundation) a sixth part of the height of the Fabrick; and if the Building be Cellar'd, he would have us, (as it should seem) to dig somewhat lower. *Palladio* lays down several Rules, to know if the Earth be firm enough for the Foundation (without Artificial Helps) by Observations from the digging of Wells, Cisterns, and such like, (which he would have to be done in the first place) and from Herbs growing there. if there be such as usually spring up only in firm Ground; also, if a great weight be thrown on the Ground, it neither sounds nor shakes, or if a Drum being set on the Ground, and lightly touched, it does not resound again, nor shake the Water in a Vessel set near it; these (says he) are signs of firm Ground. But the best way to discover the Nature of the Soil, is to try it with an Iron Croe, or

else with a Borer, such as Well-diggers use.

(4) If you build upon mossie, and loose Earth, then you must dig till you find sound Ground. This sound Ground (fit to uphold a Building) is of divers kinds; for (as *Alberti* well observes) in some places 'tis so hard, as hardly to be cut with Iron, in other places very stiff, in others blackish, in others whitish, (which is accounted the weakest,) in others like Chalk, and in others Sandy; but of all these that is the best which is cut with most Labour, and when wet does not dissolve into Dirt.

(5.) If the Earth you build on be very soft, as in moorish Grounds; then you must get good pieces of Oak, whose length must be the breadth of the Trench, or about 2 Foot longer than the breadth of the Wall; these must be laid cross the Foundation about 2 Foot asunder; and being well ram'd down, lay long Planks upon them; which Plank need not lie so broad as the peices are long, but only about 4 Inches of a-side wider than the Basis or Foot of the Wall is to be, and pinn'd or spiked down to the pieces of Oak, on which they lie. But if the Ground be so very bad, that this will not do, then you must provide good Piles of Oak, of such a length as will reach the good Ground, and whose Diameter must be about  $\frac{1}{2}$  part of their length; these Piles must be drove or forced down with a Commander, or an Engine for that purpose, and must be

placed as close as one can stand by another; then lay long Planks upon them and Spike, or Pin them down fast

(6.) If the Earth be faulty but in here and there a place, and the rest be good Ground, you may turn Arches over those loose Places, which will discharge them of the Weight. You must observe to place your Piles, not only under the outer Walls, but also under the inner Walls that divide the Building; for if these should sink, 'twould be a means to make the outer Walls crack, and so ruin the whole Fabrick.

(7.) Thus much for the *Bed of Earth* on which we Build. We are next to consider the *Substruction*, as the Ancients call'd it; but modern Artists generally call it the *Foundation*. This is the Ground-work of the whole Edifice, which must sustain the Walls, and is a kind of *Artificial Foundation*, as the other was *Natural*: About which these are the chief things to be remember'd First, That the bottom be precisely level, where the *Italians* therefore commonly lay a Platform of good Board. Secondly, That the lowest Ledge or Row be meerly of Stone. (the broader the better) closely laid *without Mortar*; which is a general Caution for all parts of a Building that are contiguous to Board or Timber; because *Lime* and *Wood* are utter Enemies; and if any where unfit Confiners, then most especially in the Foundation. Third

ly, That the breadth of the *Substruction*, be at least double to the breadth of the Wall to be raised thereon. Yet here *Discretion* is freer than *Art*, and you may make it broader or narrower, according as the goodness of the Ground, and the weight of the Fabrick shall require. Fourthly, That the Foundation be made to diminish as it rises; yet so, as that there may be as much left on one side, as on the other; so as the middle of that above may be Perpendicularly over the middle of that below: Which ought to be also observed in diminishing the Walls above Ground; for so the Building becomes much stronger than it would be, by making the Diminution any other way. Fifthly, That you never build upon the Ruins of an old Foundation; unless you are very well assur'd of its Depth. and that its Strength is sufficient to bear the Building. Lastly, I find (in some ancient Architects) a curious Precept, *That the Stones in the Foundation should be laid as they lay naturally in the Quarry*: They supposing them to have most Strength in their natural Posture. But this Precept is generally observ'd by all good modern Artists, not only in the Foundation, but also in all parts of the Superstructure; and that for a better Reason than bare Conjecture, *viz.* Because they find the Stones to have a cleaving Grain, (or be subject to cleave) that way of the Stone that lay Horizontal in the Quarry: And there

therefore, if the Horizontal Position of the Stone in the Quarry should be placed Vertical in the Building, the Superincumbent weight should be apt to cleave them, and so render the Fabrick Ruinous; for as *Philip de l'Orme* observeth, the breaking or yielding of a Stone in the Foundation, but the breadth of the back of a Knife will make a Cleft of more than half a Foot in the Fabrick a-loft. See Stone, and Bed, and Face of a Stone.

3. *How to value.*] There are several ways, (says Mr *Philips*) by which Men value the Foundations (or Ground-plots) of Houses. (1. Suppose he means, in Cities and great Towns.) As —

First, Some value them by their length or breadth toward the Street, reckoning every Foot in Front to be worth 4, 5, 6, 8, or 10 s Yearly, according to the Street, or Place they stand in; and this Yearly Value they reckon at 20 Years Purchase, and so every Foot in Front is worth 4, 5, 6, 8, or 10 Pounds. But this is a very uncertain way, by reason of the great Difference in the depth of Houses. &c.

Secondly, Others value Foundations by their length and breadth, measur'd by the Foot; reckoning every Foot to be worth 3 or 4 s. But this way will deceive you as much, or more than the other, if you don't set a good Rate upon each Foot of Ground. For Ground being scant in a City, each Foot of it *there* may be worth 3 or 10 s. which in the

Country is not worth  $\frac{1}{2}$  a Farthing; tho' you reckon Land at 20 s. an Acre, and 20 Years Purchase; for so'tis worth but one penny a Yard, and every Yard has 9 Feet.

Thirdly, But the way that I shall prescribe, (says my Author) as more general and certain, to value these Foundations, is to get a true and indifferent Estimate of the Yearly Rent these Houses formerly went at, at a moderate rack Rent, without any Abatement or Diminution thereof by Fines, or any other Considerations: Which being known, you may reckon the true value of these Foundations to be 4, 5, or 6 Years Purchase, according to the said Yearly Rent, that is about the third part of the full worth or purchase of the Fee simple of the House. But if you will more exactly judge of, and determine the true worth of these Foundations; it will be best to range them into three sorts, reckoning the first and lowest sort of Houses which yield least Rent, at 4 Years Purchase; the second sort which yield a moderate Rent, at 5 Years Purchase, and the third sort which yield the biggest Rent, at 6 Years Purchase. My Author, (the afore-mentioned Mr. *Wing*) demonstrates the *Meliority* of this way of Valuing Foundations, above any other; but I have been already too long upon this Theam, and therefore I shall defer the rest of this Ingenious Discourse on this Subject to another Opportunity.



*Fountain.*

An artificial Spring of, (or Well to contain) Water in a Garden; whither the Water is brought in Pipes of Lead, &c. and commonly made to spout out of the Mouths, or other parts, of Images.

*Framing.*

1. *Of Houses* ] I know some Workmen in *Suffex* that do all the Framing in a House, viz. The Carcase, Flooring, Partitioning, Roofing, Ceiling-beams, Ashtoring, &c. all together, and make the Windows, and Lanthorns, and hew and saw the Timber for 12 s. per Square.

2. *Carcase of a House.* ] Mr. *Leybourn* says, That Carpenters commonly work by the Square of 10 Foot, in erecting the Carcase, that is, (says he) framing and setting up with the Partitions, Floors, Rafters, and such like; for which (says he) they have (in running Buildings) from 15 to 20 s. the Square, and some may deserve 30 s. or more, (and to a square of good Carcase, (says he) 20 Foot of Ground rough Timber may be allow'd.) But I know not whether he means that the Carpenter fells, and hews and saws the Timber in to that Price; for some Workmen in *Suffex* tell me, That for framing the Carcase of a House, and sawing the Timber, they have but 8 s. per Square, and without sawing timber but 4 s. 6 d. others say but 4 s. per Square.

3. *Carcase of a Barn.* ] Some Workman tell me, That they have for Framing of Barns 3 s. 6 d. per Square. They also tell me, That the Charge of the Carcase of a Barn may be thus computed, viz. 4 s. per Square for sawing the Boards, considering the Slabbing, and the Boards lying one over another, 2 s. per Square for sawing the Timber, 3 s. 6 d. per Square for Framing, and 4 s. per Square for the Timber, reckoning at 12 s. per Tun, and 1 Tun to make three Square of Framing. So that the whole Charge of the Carcase will be at least 13 s. 6 d. per Square; for if the Timber be more than 12 s. per Tun, then the whole Charge will be more than we have computed.

4. *Partitions* ] Tho' some Workmen reckon Partitions in to the Carcase as was said, Number 2. yet others reckon them by themselves for which, and sawing the Timber, they tell me, They have 6 s. or 7 s. per Square; and for the Workmanship only, 2 s. 6 d. per Square.

5. *Roofs* ] Mr. *Leybourn* says, That Carpenters commonly reckon 4 or 5 s. in the Square more for framing of Roofs, than for the rest of the Building. I know not how he means; for I am sure some ingenious Workmen in *Suffex* tell me, That for framing of Roofs, and sawing the Timber, they have but 8 or 9 s. per Square, and for the Workmanship only but 4 s. 6 d. per Square.

6. *Floors* ] See Floors. N 6.

7. *Through.*

7. *Through*] Some Workmen tell me, That for Thorough-framing, (as they call it, that is framing all, and making Doors and Windows,) they have  $5s$ . per Square, for the Workmanship only.

8. *By the great Square.*] Some Carpenters tell me, That in Brick Buildings they sometimes work by the *great Square*, and then besides framing the Floors, Partitions, Roof &c. they also make Doors, Windows, Cornishes, Stair cases, and (in general) all that is Carpenters Work, and sawing of Timber. Yet I think they told me. They were particularly paid for making the Moldings, or Cantalivers. And for this work they have  $6l$ . per Square. But 'tis to be noted, That in this way of working, they measure only the Ichnography, or Ground-plot, only to the Dimensions they add one of the Projectures in Front, and not in Flank, and so cast it up.

9. *Of Measuring*] This kind of work is measur'd by the Square, as Floors. See Floors N. 5.

### Fret work.

See Plastick Art.

### Free-Masons Work.

See the Particulars in their proper Places of the Alphabet

### Freeze, or Frieze.

1. *What*] A large Flat Member, which separates the Archi-

trave from the Cornice. See its Etymology under the word *Zophoros*

2. *Kinds.*] There are as many kinds of Freezes, as there are Orders of Columns, viz. Tuscan, Dorick, Ionick, Corinthian, and Composite; of all which in their order.

3. *Tuscan*] *Vitruvius* makes this Freeze flat and plain, and in height 30 Minutes. *Vignola* also makes it flat and plain, but in height 35 Minutes. *Palladio* makes it convex or swelling, and in height but 26 Minutes. *Scammozzi* makes it plain, and in height 42 Minutes.

4. *Dorick.*] *Vitruvius*, (and so also *Vignola*) makes this Freeze flat, only Carv'd with Triglyphs and Metops, and its height 30, or 45 Minutes. *Palladio* and *Scammozzi* also make it like *Vitruvius*, and in height 45 Minutes.

5. *Ionick*] *Vitruvius* makes this Freeze flat, but commonly Carv'd with Acanthus Leaves, Lions, and Men, &c. And in height 30 Minutes. *Vignola* makes him flat also and in height 45 Minutes. *Palladio* makes him Convex or Swelling, and in height but 27 Minutes. *Scammozzi* makes him flat, and in height 28 Minutes.

6. *Corinthian.*] *Vitruvius* makes this Freeze flat, but Carv'd with Acanthus Leaves, and Men, &c. and in height  $37\frac{2}{5}$  Minutes. *Vignola* makes it like *Vitruvius*, but in height 45 Minutes. *Palladio*, and *Scammozzi* also make it like *Vitruvius*, but *Palladio* makes it in height

height 28 Minutes, and *Scammozzi*, 31  $\frac{1}{4}$  Minutes.

7. *Composite*.] *Vitruvius* makes this Freeze flat, but beset with Cartouses, and Carv'd betwixt each Cartouse, and in height 52  $\frac{1}{2}$  Minutes. *Vignola* makes it like *Vitruvius*, but in height but 45 Minutes. *Palladio* makes it convex, or swelling, and in height but 30 Minutes. *Scammozzi* makes it like *Vitruvius*, and in height but 32 Minutes.

### *Fresco.*

1. *What*] A way of Painting or Plastering, (or rather both) upon Walls, to fendure the Weather, and representing Birds, Beasts, Herbs, Fruits, &c. in relief.

2. *Of Painting in- Fresco*] Painting in *Fresco* is thus perform'd. Grind your Colours with Lime-water, or Milk. or Whey, and so temper and mix them together in Pots, as in Size-colouring. Also, take the Powder, of old rubbish Stones. mix it with well burnt Flint, (or Lime) and Water; but wash out the saltness of the Lime, by often pouring out the Water, and putting fresh, the oftener the better; and this makes the Plaster or Compost. Avoid moist Weather, for that has great influence on the Walls: And to make the Work the more durable, strike into the Joints of the Brick or Stone Wall, stumps of Horse-nails, about 6 Inches asunder; for this will keep the Plaster from peeling off.

Then, with this Compost Plaster the Wall a good thickness, letting it dry; then (your Colours being ready prepar'd and mingled,) Plaster again over the former, the thickness of a Half-crown, so much as you intend presently to work upon; and whilst it is wet, work your Colours therein, which will mix and incorporate with the Plaster, so as never to wash out.

Work your Painting quick with a free Hand; for there can be no alteration after the first Painting; and therefore make your Colour high enough at the first; you may deepen, but not easily heighten.

Avoid Mineral Colours, Earthy Colours are the best, as all *Okers Spanish brown, Terra-vert, Spanish white, &c.*

Your Brushes and Pencils must be long and soft; otherwise they will rake and raise the Painting; your Colours must be full, and flowing from the Brush; your Design perfect in the Image, or Paper Copy; for in this Work you cannot alter or add upon any Colour.

3. *History*.] This kind of Painting was the ancient Grecian way of Painting, and since much us'd by the Romans. *Plutarch* tells us, That *Aratas* the great Commander under *Ptolemy* King of Egypt, (in a Complement to the Emperor's Affections that ways) spared the sacking of a wealthy City, meerly for the Excellency of the *Fresco* Painting upon the Walls of the Houses.



There have been several whole Towns of this work in Germany rarely done, but now ruin'd by war.

At Rome there are three Chambers (in the Pope's Palace) of *Fresco*, done by *Raphael Urbin*, and *Julio Romano* (his Disciple) who finished his Master's Work, which is yet call'd *Raphael's Designs*. Other Places there are done by *Andrea del Sexto*, and *Michael Angelo*, and some other Artists.

At *Fountain bleau* in France is most excellent *Fresco-work*. It is the continu'd Travels of *Ulysses* in 60 pieces, done by *Bollameo*, *Martin Rouse* a Florentine, and others.

### *French-glass.*

See Glass. N. III.

### *Frieze.*

As Freeze.

### *Frigeratory.*

A Place to make or keep things cool in.

### *Free-stone.*

See Stone. N. 1.

### *Front, or Frontispiece.*

1. *What.*] The Face, or Fore-side of a House. See *Portal*.

2. *Of Setting.*] The *Setting*, (that is making) of the Fronts of great Buildings, viz Ashlar, (or Stones) Architrave, Windows and Doors, with the Ground-table, Fascia's, and

other Members, is worth from 3 l. 10 s. to 5 l. per Rod, (says Mr. Wing) according to the goodness of the Work.

### *Frontish doors.*

See Doors. N. 4.

### *Frowey.*

Timber is by some Workmen said to be *frowey*, when it is evenly temper'd all the way, and works freely without tearing.

### *Funnels of Chimneys.*

1. *What.*] The Funnel of a Chimney is the Shaft, or smallest part of it, from the Waist (where 'tis gather'd into its least Dimensions) upwards.

2. *Of making*] *Palladio* tells us, That the Funnels of Chimnies must be carry'd through the Roof, 3, 4, or 5 Foot at least, that they may carry the Smoke into the Air. And here you must take care, (says he,) That they be made neither too wide, nor too narrow; for if they be too wide, the Wind will drive back the Smoke into the Room; and if they be too narrow, the Smoke (not having free Passage) returns back also. Therefore 'tis that Chamber-chimneys are not made narrower than 10 or 11 Inches, nor broader than 15, which is the ordinary depth of the Funnels of great Kitchen-chimneys, whose Breadth is 4 or 5 Foot within the Work, from the Place where the Brest ends, to the Top of the Funnel. Now, the said Brest reaches from the Mantle

Mantle-tree, to the Ceiling, or pitch of the Arch, always diminishing within the Work, till you come to the Measures of Depth and Breadth, before-mentioned; and from thence to the End of the Funnel, it must be carry'd up as even as you can possibly; for failing in this, it often happens the Smoke is offensive.

### Furrs.

#### Furrings.

In *Architecture*, *Furring* is the making good of the Rafter-Feet in the Cornice. That is, when Rafters are cut with a Knee, these Furrings are pieces that go straight along with the Rafter from the Top of the Knee to the Cornice. Also when Rafters are rotten, or sunk hollow in the middle, and pieces (cut thickest in the middle, and to point at each End) are nail'd upon them to make them straight again; the putting on of those Pieces, is call'd *Furring the Rafters*; and those Pieces so put on, are call'd *Furrs*.

#### Fust.

From the Latin *Fustis*, a Club, signifies the Trunk or Shaft of a Column, being that Part comprehended between the Base and the Capital.

### Gable-end.

1. **W**<sup>Hat.</sup> In *Architecture*, the Gable-end of a House is the Upright Triangular End of the Roof.

2. *To Measure.*] To measure a Gable-end, multiply the Breadth at the bottom, by half the Perpendicular, or Line from the Angle at the top to the middle of the bottom; or multiply half the former by the whole of the latter, and the Product will give the Content in such Measures as the Dimensions were taken in.

### Gain.

The bevelling Shoulder of the Joyst, or other Stuff. 'Tis also us'd for the lapping of the End of the Joyst, &c. upon a Trimmer or Girder, and then the Thickness of the Shoulder is cut into the Trimmer also bevelling upwards, that it may just receive the Gain, and so the Joyst and Trimmer lie even and level upon their Superficies. This way of working is us'd in a Floor or Hearth.

### Galleries.

Are long narrow Rooms, made on the Sides or Fronts of Houses; they serve for Walking, Eating, and other Divertisements. Their Length (says *Palladio*) ought to be at least 5 times their Breadth; they may be 6, 7, or 8 times their Breadth, but must not exceed.

### Gard-manger.

A Store-house, or Room to set Meat in,

*Gates.*

## Gate.

1. *What.*] 'Tis a thing so well known, that it needs no Description; for all know it to be a Place for Passage of Persons, or Horses, Coaches or Waggon. &c

2. *Of their Proportion.*] The principal Gates for Entrance, through which Coaches and Waggon are to pass, ought never to be less than 7 Foot in Breadth, nor more than 12 Foot, which last Dimension is fit for large Buildings.

As to the Height of a Gate, it ought to be  $1\frac{1}{2}$  the Breadth, or something more.

But for common Gates in Inns, where Waggon loaded with Hay and Straw go under, their Height may be twice the Breadth.

3. *Of the Price of some sorts.*] As to the Price of Gates, it is various, according to the sorts of Gates, which again will differ according to the Dimensions and Workmanship. Those which we shall mention at present, will be only *Pallisado*, and *Pold Gates*.

And first of *Pallisado Gates*; Mr. *Vving* saith, in *Rutland*, That if the Gates be 6 or 7 Foot high, and the Workman find Timber and Workmanship, they are worth about 9 or 10 *s* per lineal Yard; but if he find only Workmanship, then 'tis worth 6 or 7 *s*. per Yard.

I have observed, That if they are *Semi-pallisado*, with Kneeling-rails at the Top, handsomely moulded on both

Sides, and square Pallisades, Raised Pannels, and Bisection Mouldings on both sides, the Gates about 8 Foot high, and the Posts a Foot square, open'd in the Front, or revailed with a Moulding struck in it on both sides the Revail, a Base and Capital laid on the Posts, and the Heads cut into one of the Platonick Bodies; as suppose an Icolaedron, and the Posts were about 10 or 11 Foot above Ground, the Workmanship is worth 12 or 13 *s*. per Yard lineal; but if the Workmen find Timber, it will be worth more than 20 *s* per Yard lineal; in such Gates, to find all Iron-work, Painting, &c. it would be worth above 30 *s*. per Yard lineal.

Secondly, *Of Pold Gates*; (which are such as are set in Fences for to shut up the Passages into Fields, and other Inclosures.) These are of two sorts, either of sawed, or cleft Timber; for to make a sawed one, and set him up, and his Posts, the Price in different Places is from 3 *s* 6 *d*. to 5 *s*. but if the Carpenter pay for the sawing, then the Price is from 5 *s* to 6 *s* 6 *d*. Such a Gate, Timber and Work, is worth from 7 to 10 *s*. according to their Goodness; but with Posts from 12 to 15 *s*. But Gate and Iron-work from 10 to 13 *s*. But Gate, Iron-work, and Posts from 15 *s* to 18 *s*. but Cleft pold Gates, cleaving, and making, and hanging, from 4 to 5 *s*. and so proportionably for all Timber, Iron, and Posts, &c. The Reason why the Prices are thus differ-



different, is, because 'tis according to the Customs of different Places where I had my Information.

### Gavel.

A Word used by some, by which they mean the same as *Gable*, which see.

### German-glass.

See *Glass*. Num. V.

### Girding-beams.

'Tis used by some Architects, to signify the same as

### Girders.

1. *Vvhat*] Are some of the largest Pieces of Timber in a Floor, the Ends of them are for the most part framed into the *Summers* or *Brest-summers*, and the *Joysts* are framed in at one End to the *Girders*.

2. *Of their Size or Proportion*] The *Scantlings*, or Size of *Girders* and *Summers*, upon the Rebuilding of London, after a Consultation of experienced Workmen, were reduced to an Act by the Parliament, and are thus set down, as fit for all *Fabricks*, great and small, *viz.*

Girders and Summers, in length.	From	to	must be in	
	F. In.	F. In.	Breadth, Inches	Depth, Inches.
	10. 0	15. 0	11	8
	15. 0	18. 0	13	9
	18. 0	21. 0	14	10
	21. 0	24. 0	16	12
	24. 0	26. 0	17	14

3. *How to be laid in the Brick-work.*] No *Girder*, or *Summer* ought to lie less than 10 Inches into the Wall, and their Ends must be laid in Loam.

4. That *Girders* and *Summers* be of good hearty Oak, as free from Knots as may be: because that will be least subject to break and may with more Safety be relied on in this cross and tranverse Work.

### Girt.

See *Fillet*.

### Glass.

1. *Vvhat*.] All know it to be a diaphanous, or transparent Body made by Art, of Sand and Nitre, saith *Pliny*: 'Tis also made of white glittering Flints, mixt with Sal-  
Alkali,

Alkali, or the Salt of the Herb *Glass* work, or Salt of Fern-ashes for common *Glass* some say. *Monsieur Blancourt* saith, That the *Venetians* also use white *Flints*, and also a rich *Sand*, and likewise a sort of white *Marble*; he also saith, That all white transparent *Stones* that will not burn to *Lime*, are fit to make *Glass*; and that all *Stones* that are fit to strike *Fire*, are capable to be made into *Glass*.

II. *The Sorts of Glass.* There are various sorts of *Glass* which are made use of in the *World*, but at present I shall confine my self to speak only of those *Sorts* which *Glaziers* commonly work upon here in *England*, which are these following, viz. *Crown-Glass*, which is of two sorts, *Lambeth* and *Ratcliff*.  
 2. *French or Normandy Glass.*  
 3. *German Glass* of two sorts white and green. 4. *Dutch Glass* 5. *Newcastle Glass.* 6. *Staffordshire Glass* 7. *Bristol Glass* 8. *Looking glass.* 9. *Jewellous Glass*; of which sorts I shall succinctly treat in their Order.

III. *Of Crown-glass.* Is of two sorts, *Ratcliff* and *Lambeth Crown glass*, of both which Sorts I will briefly speak. And

1. *Of Ratcliff Crown-glass.* That sort of *Glass* which goes by this Name, is the best and clearest sort of *Crown-glass*; which Sort was at first made at the *Bear-garden* on the *Bank side*. In the Year 1691, I had it published in the *Gazette* for June 15,

&c. where it is commended in this Manner, and called *Crown-window-glass* much exceeding *French Glass*, in all its Qualifications. But now at the *Bear garden* *Looking glass-plates* are made; the Maker of this best sort of *Crown-glass*, being now removed to *Ratcliffe*, and upon that Account it now bears the Name of *Ratcliff Crown-glass* as it did at first of *Bear-garden Crown Glass*.

This sort of *Crown-glass* is of a light *Sky-blew Colour*, which may be very distinctly seen, if it be laid on a piece of white *Paper*.

I have been informed, That an *English* *Glass-maker* went over into *France*, on Purpose to learn the *French Way* of making *Glass*, which when he had attained to, he came over again into *England*, and set up making of *Crown-glass*, and therein much out-did the *French* his Teachers, as *Englishmen* usually do. I have been told by some *London Glaziers*, that there is 24 *Tables* of this *Crown-glass* to the *Case*, the *Tables* being of a *Circular Form*, of about 3 Foot 6 or 8 Inches Diameter, and by Consequence, each *Table* will be in Area about 9 or 10 Foot, and the *Case* betwixt 220, and 240. This *Glass* is brought from *Ratcliff* in such kind of Frames as *Newcastle glass* is brought up into the *Town*, only the *Newcastle glass* is brought on *Ship-board*, and this *Ratcliff glass* upon a *Staff* betwixt two Men, as they carry a small *Vessel* of *Beer*, or the like.

I have known this *Ratcliff-crown-glass* sold about 9 *d* per Foot in *London*, ready cut into Squares. And when wrought in Lead, and set up, for about 18 *d*. per Foot.

2. Of *Lambeth Crown-glass* ] This second sort of *Crown-glass* takes its Name also from the Place where 'tis made; 'tis of a darker Colour than *Ratcliff Crown-glass*, inclining something to a Green.

This sort is sold in *London* for about 8 *d* per Foot cut into Squares, and being wrought and set up in Windows with Lead, its Price is about 16 *d*. per Foot.

IV. Of *French glass* ] By some call'd *Normandy glass*, because it was formerly made at *Cherbourg* in *Normandy*. But I am informed that the Work-houses have within these few Years been removed, for certain Reasons of State to *Auxerre* in *Burgundy*. They also make Glass at *Nevers* in *Orleans*, and likewise at *St. Gobin* near *La Fere* in *Picardy*; but from which of these Places our *French-glass* comes which we use in *England*, I cannot certainly tell. But it is a thinner and more transparent sort of Glass than our *Newcastle-glass*, and when 'tis laid on a piece of white Paper, it appears of a dirtyish green Colour. It used to be of a middle Price, betwixt *Crown* and *Newcastle-glass*, and I have known it sold for 12 *d* per Foot, wrought in Lead, and set up; but some say 'tis now (we have War

with *France*,) near as dear as *Crown glass*.

Of this Glass there is but 25 Tables to the Case.

V. Of *German glass* ] Of this sort of Glass there are two Kinds, *viz.* *White* and *Green*.

1. *White German glass* ] This Glass is of a whitish Colour, and free from those Spots and Blemishes which our *Newcastle Glass* is subject to, but it hath commonly some fine or small carved Streaks, or Lines, as the *Newcastle-glass* hath.

2. *Green German-glass* ] This you may well suppose to be of a greenish Colour by its Name; it is subject to have those fine Lines, or Streaks as the *White* is; but both this and the *white German* is straighter, and not so crooked and warped as *Newcastle Glass* is: Both these sorts of Glass are brought over from *Germany*, and yet it is generally as cheap as *Newcastle Glass*.

VI. *Dutch-glass* ] It differs not much from *Newcastle Glass* in its Colour, and I have observed some of it that hath been very crooked: I am informed that the Tables of this sort of Glass are but small; 'tis not much used now in *England*. This Glass hath its Name also from those that make it, *viz.* The *Dutch*, for I am told 'tis brought out of *Holland*; 'tis also about the same Price with *Newcastle-glass*.

VII. *Newcastle-glass* ] This sort of Glass is of a kind of an Ash-colour; it is the Glass that



that is most in use here in *England*, but 'tis subject to have Specks and Blemishes, and Streaks in it, and it is very often warped and crooked. Of this Glass, Mr. *Leybourn* says there are 45 Tables to the Case; but if I did not mistake, a *London* Glazier told me, That they had but 35 Tables to the Case, and Mr. *Leybourn* also saith, That each Table contained 5 superficial Feet, and by Consequence a Case of 45 Tables to the Case will contain 225 Foot. The Glazier before mention'd, said there was 6 Foot in a Table, and if but 35 Tables to the Case, that would amount to but 210 Foot. But I was informed by one that told me he had taken the Dimensions of some Tables of *Newcastle* Glass, and he found them to contain 7 Foot at least; for, saith he, they are of this Form; The upper Edge, as they stand in the Cases or Frames, is Circular, about the 4th or 5th part of a Circle, the Cord of which, saith he, was about  $3\frac{1}{2}$  Foot, the lower Side was straight, about 18 or 19 Inches, the Perpendicular from the bottom to the top, about 3 Foot: From this Observation, a Case of 35 Tables would amount to 245 Foot. These Tables of Glass are brought in Cases, or slight Frames of Sticks fixed at some Distance one from another in to 4 Corner-pieces which are stouter. The Ends of these Frames are made tapering nearer one another at the bottom than they are at top, according to the Form of the Glass;

but the sides are parallel; the Glass is set on some Straw, which is laid on the bottom of the Frame, and there is some Straw also put on the sides, and top of each Case, but none betwixt the Tables. These Cases are brought to *London* in the Coal-ships, they being set on End in the Coles more than half its depth, by which Means they are kept steady from falling and being broke by the Motion; and Rowling of the Ship.

Mr. *Leybourn* saith, That a Case of 45 Table, 9 Foot to a Table, equal to 225 Foot, doth weigh about 200 lb. and by Consequence 9 Foot will weigh about 8 lb.

He also saith, the Price of *Newcastle* Glass is uncertain; for when Coals are plenty, then Glass is cheap, and when the Coals are dear at *London*, then *Newcastle* Glass is so likewise, not that they want Coals at *Newcastle*; but because they have no other Conveyance for it to *London*. So that sometimes it is at 30 s. per Case, and other Times 40 s.

But I was informed by a *London* Glazier, that the most constant Price was 34 s. per Case.

To cut a Case of this Glass into *Quarries* Diamond fashion (with halves, and quarters, and 3 quarters of *Quarries*, as the Glass falls out) some say it is worth 6 or 7 s. but I did hear a Glass-cutter say he would do it for 3 s. or 3 s. 6 d.

*Newcastle-glass* cut into large Squares are sold for 22 to 25 s. per 100 Foot, according to their Size.

And *small Squares*, from 19 to 22 s. per 100 Foot.

And *Quarries*, of *Newcastle Glass*, for about 16 s. per 100 Foot.

Glazing done with this *Newcastle Glass* with *Quarries* banding, soddering, pinning the Casements being included, the usual Price is 5 d. or 6 d. per Foot in *London*, and thereabouts: but in several Parts of the Country they have 6 d. per Foot. and will be paid for pinning of the Casements besides.

VII *G'azing*, in some Places of *England*, as in *Rutland*, and other *Northern* Parts is done, with *Quarries* of *Newcastle Glass* for 4 d.  $\frac{1}{2}$  or 5 d. per Foot. And *Squares* wrought into *Lead*, and set up for 6 d. per Foot.

But then again in *Suffex* and *Kent*, the *South* Parts of it they will not work so cheap, because their *Glass* is something dearer to them; in these *Southern* Parts, they commonly reckon on 7 d. per Foot for Glazing with *Squares* of *Newcastle-glass*, besides they will be paid for pinning of the Casements.

VIII. *Staffordshire glass*] This sort of *Glass* which is made in *Staffordshire*, I could never yet learn any certain Account of; for 'tis a sort of *Glass* but seldom used in these parts of the Kingdom.

IX. *Bristol glass*] This is made at the City of *Bristol*; but by reason they have not the Convenience to send it by Sea, (as they have from *Newcastle* by Coal-Ships,) it is very rare to have any of it in *London*,

tho' it be as cheap, and better than *Newcastle Glass*.

X *Looking-glass*.] As to *Looking-glass Plates*, they are made at the *Bear garden* on the *Bank-side*, *London*, (where *Crown-glass* was first made.) I do not certainly know whether this sort of *Glass* be not made with the sort of *Sand*, mentioned by *Dr Grew* in his *Museum Regalis Societatis*, 346 P. *Fine Sand*, saith he, from a *Sand-pit* near *Bromley* in *Kent*, of this is made the clearest and best *English-glass*; it consisteth of some Grains as clear as *Crystal*; with which others obscure being mixed, give a whitish Ash-colour to the whole Mass.

These *Looking-glass Plates* are ground smooth and flat, and polished; they are sometimes used in *Sashes* or *Sash-windows*; but 'tis a dear sort of *Glass*; for they ask 4 s. per Foot for such *Squares*, and if they are large, 'tis much more.

There is a Way that some use to try which is the whitest and clearest *Glass*, which is thus, viz they take it up close by one Edge, betwixt the Edges of the middle and Fore-finger; and then looking against the Cut, or Broken Edge, the Eyes being thus skreen'd by the Edges of the two Fingers, they say 'tis easy by this Method to discern which is the whitest and clearest *Glass*.

*Looking-glasses* foil'd being in Vogue for Ornaments over Chimneys in Parlours, &c. I shall briefly say something concerning them. *Sir William Petty* saith, That the Value of

*Looking-*

*Looking-glass plates* consists in a duplicate proportion of their sides to their Squares. Because you shall not be left quite in the dark as to this matter, I will exhibit the Price which I have known set down upon two Sizes of *Looking glasses*, viz. One of 5 Inches long, and 12 broad in a Frame to place over a Chimney 40 s. some of 10 and 8 Inches, in Walnut-tree-frames for about 4 s. per piece, if they have Dimond-cut; but if not, this size is about 6 d per piece cheaper. I could here have shew'd the Method of Grinding, Polishing, and Foiling of these *Glasses*; but it being foreign to my purpose, shall omit it.

XI. *Jealous Glass.*] This is a sort of wrinkled Glass of such a Quality, that one cannot distinctly see what is done on the other side of it; but yet it admits the Light to pass thro' it. 'Tis made of the same sort of Materials, as *Looking-glass-plates* are. This *Jealous-glass* is cast on a Mould, and is compos'd all over its Surface with a multitude of Oblong Circular Figures, (which are Concave,) somewhat resembling Weavers Shuttles; this is on one side of it, but the other consists of Figures a little Convex, and this last side is the side they cut it on, when the Squares are too big for the present use, it being found to be very difficult to cut it on the Concave side. Some sorts of this *Jealous-glass* have a Convexity rising in the middle of the Concavity; so that one side, or Surface of it doth much resemble the Boats which Boys

used to make by folding of Paper; only in this Glass the Concavities, and Convexities are both more obtuse and blunt. But there are various sorts of this Glass, in respect either to the Form or Size of the Figures, of which this *Glass* is compos'd; for I have seen some of this *Glass* have the Shuttle-like Figures, much larger than other some, and some of it with the Points (as it were) of the Shuttles very curved, and sometimes these Figures are in a Position perpendicular to one Edge of the Square, and other some are oblique to it.

I am inform'd that this *Glass* is about 18 d. per Square, each Square being about 12 or 14 Inches broad, and 15 or 16 Inches long. The reason why they are so dear, is, (as I am inform'd) because the *Looking-glass-plate makers* do not care to make these sort of Squares, but only when their Pots of Metal are almost out, and they are a little at leisure; for they say it wastes *Glass* too much for their Profit. I heard a *London* Glazier say, that he hath sometimes stay'd a Month for some of it, before he could have it to use. This sort of *Glass* is commonly used, in and about *London*, to put into the lower Lights of Sash-windows, &c. where the Windows are low against the Street, to prevent People's seeing what is done in the Room as they pass by: It is sometimes set in Lead in such Places, where they would not have their Actions overlook'd.

Now it is very plain (to any reasonable Man, that



knows any thing of Refractions,) that this sort of Glass must needs prevent People's seeing through it, into a Room as they pass by; because the Rays, or Species of a visible Object, are by reason of such a variety of Refractions, (caused by the inequality of the Glasses Surface) broken and confused when they arrive at the Retina, or Fund of the Eye.

XII. *Woolwich*, or *Woolledge*] This also was one kind of our *English Glass*, which did receive its Name from the Place of its make; but by reason they met with some Discouragement in their Proceedings there, they have laid it down for some time, and do not now make there.

### *Glazier's-work*, or *Glazing*.

I. *What*] *Glazier's-work*, or *Glazing*, all know to be a manual Art, whereby pieces of Glass (by the Assistance of Lead) are so fitted and compacted together by *straight* or *curved* Lines, that it serves as well for the intended use, (almost) as if it were one entire piece; nay in some respects far better and cheaper, *viz.* in case of breaking, &c.

These two Heads of *Straight* or *Curved*, will admit of several Sub divisions, and first of *Straight*, which contains a square Work, whose Angles are right ones, as almost all Window-Lights are in Timber Window-frames, and so likewise are the Squares, (if it is

Glazed with such of which the Lights are composed.

2. *Miter*, or making an Angle of 45 Deg. this but seldom happens in this Profession, unless it be in some piece of *Fret-work*.

3. *Bevel*, this is the most common, especially in the Country, and ordinary Houses, (which all know to be most numerous,) for most such are Glazed with *Quarries*, which is Bevel Work, so likewise is a great deal of *Fret*, and all *snip work*.

*Curved Work*, consists either of *Circles*, *Ovals*, or some distorted Arches; *Circles* and *Ovals* are commonly used for Lights at some particular place in a Building, as in a *Pediment*, over a Door, or the like, in the middle of a Front, &c. I have also observed a Light over a Door in the Front of a Building that did consist of two Arches of a pretty large Circle like a Weavers Shuttle, lying along, and the whole Light was Glazed with one piece of Glass both Parts, *Circles*, and *Ovals*, and sometimes some distorted Arches are made use of in crocket Windows, &c. And also both whole and parts of *Circles*, and *Ovals* in their *Fret*, or Ornamental Works.

II. *Of Glazier's Draughts.*] the most ingenious sort of *Glaziers*, both in the City and Country work by Design, (and not by Guess, like the common Blunderers in most Professions relating to Building;) for they make a *Draught* of all their Windows on Paper, in which they

they set down the Demensions of each Light, both of height and breadth, and the number of Squares, both in breadth

and height, in each Light; and also the number of Lights in each Window, after the following manner, *viz.*

1			2		
3. 6. 0 $\frac{6}{4}$	3. 6. 0 C	3. 6. 0 $\frac{6}{4}$	4. 0. 0 $\frac{7}{4}$	4. 0. 0 C	4. 0. 0 $\frac{7}{4}$
2. 1. 0	2. 1. 0	2. 1. 0	2. 1. 0	2. 1. 0	2. 1. 0

3	4	5	6
4. 50 $\frac{8}{3}$	4. 50 C	4. 50 $\frac{8}{3}$	4. 50 $\frac{8}{3}$
1. 50	1. 50	1. 50	1. 50

N. B. Note, That here are six distinct Windows, *viz.* the two upper ones are three light Windows, and of the four lower ones there is one of, three Lights, two single Lights, and one double one.

N. B. That a number standing at the top (of the Oblong Figure in the Scheme above) is the height of the Light; that at the bottom the breadth, and that number in the middle, the upper one for the number of Squares in height, and the lower one for the number in breadth.

N. B. Also that the first and second Windows, (which are three light Windows,) have their Dimensions set down in Feet, and Duodecimal Parts of Feet, E. G. in the first Window you have this Number, 3. 6. 0 at the top, which signifies the height of the Light to be 3 Foot, and 6 Duodeci-

mal Parts of a Foot, in the middle there is  $\frac{6}{4}$  which signifies 6 Squares in height, and 4 in breadth, (equal to 24 in the whole Light,) and below their stands 2. 1. 0 which signifies 2 Foot, and 1 Duodecimal Part of a Foot: In the second, or middle Light there is a C set to shew that there must be a *Casement* in that Light, and by Consequence the upper Squares, and lower ones must be cut something shorter, because of the Frame of the *Casement*,) and the side Squares must be cut something narrower, and the four corners ones both shorter and narrower.

Now by such a Draught, the *London Glazier* when his Country Customers send to him for such a certain parcel of *Glass*, he knows immediately how to cut it to fit his Work, and the Country *Glazier* knows how to

work up his Glass by it. so that it shall fit each Window, though he be forty Miles remote from it, as well as if he were by it.

The *London-glass-cutters* commonly mark (with a Letter or Figure over them,) all the Windows that are of one Size, and write the same Mark on a piece of Paper, the which is put in among that parcel of Squares which belong to those Lights which are all of one size; this piece of Paper is so put in, that the Character is visible above the edges of the Squares: By which distinguishing Character the Country Glazier readily knows which Squares to take for any Window.

I shall only add one thing more to this of *Draughts*, and so conclude with this Head: And that is, that such Glaziers as understand it, set down their Dimensions in Decimals; which fits as well or better for the *London Glass-cutters*, because they have their Rules Centesimally divided for the purpose. I have here therefore, (for satisfaction to the curious) set down the Dimensions of the four lower Windows, in Feet and Centesimal Parts. As for Example, in the third Window, at the top, you have these numbers 4. 50, which signifies the height of the Light is 4 Foot and 50 Centesimal Parts, and at the bottom there is this number 1. 50 which is 1 Foot 50 Centesimal Parts, and so of the rest.

III. Of Measuring Glaziers Work.] In discoursing of this,

I shall do these two Things; first, Consider the *Customs* used amongst them, (for Custom is to be the greatest Guide in all manner of Measures) And, secondly, of taking the *Dimensions*, and computing the Quantity.

1. Before we proceed to taking of *Dimensions*, which one would think should be the first thing, in order to measure any Superficies or Solid; Yet before we can pretend to take these *Dimensions*, we must be inform'd of all Customs that are claimed, and have been tolerated by long standing, &c. in any Profession. And therefore,

*Note*, 1. That in Glazing when Windows have a *Semi-circular* top, (or any other *Curved* Form) the Custom is to take the full height as if it were square.

2. That all Windows consisting of intire *Circles*, *Ovals*, or any other *Curved* Form, the Dimensions are taken the two longest ways at Right Angles one to another, (which we may call the *Diameters*, and from these Dimensions the Areas are found the same as if they were Square.

3. That all *Crocket-windows* in Stone-work are all measured by their full Dimensions in height and breadth, as if they were Square and not Curved.

4. That there is very good Reason for all these Customs, if we consider the trouble in taking Dimensions to make them by; 2<sup>dly</sup>, the waste of Glass in working it to these Forms, and 3<sup>dly</sup>, the extraordinary time expended



expended in setting it up, more than in square Lights. I say if these things be duly weigh'd and consider'd, they will be found of more Value than the Glass which would cover a square Superficies of that Dimension. Having thus dispatched the first thing, *viz* Of Customs, I shall now proceed to the

2. Of taking Dimensions, &c.] In doing of which, in this Profession of Glazing, it is generally taken to parts of Inches, and so computed to the Nicety of a Fraction of an Inch, which may be done several ways, 4 of which being practised by some Surveyors and Workmen, I shall just mention here, *viz* 1. By *Vulgar Fractions*, 2. By *Cross Multiplication* of Feet, Inches, and Parts, 3 By *Duodecimals*, and 4. By *Decimals*. There is another way by Logarithms, which is more expeditious than either of the former; but I cannot here stay to treat of these which will require too much Time and Room for this Undertaking, or Design.

But because in Glaziers work, they usually take Dimensions to the parts of an Inch, the best and readiest way to compute the Area's, is to take the Dimensions with a Sliding rule, such as the *Glaziers* generally use; which Rule is divided Centesimally, the Dimensions being thus taken, and set down, are Multiplied one into the other. as easily as *Vulgar Arithmetick* in whole Numbers is.

As the the Method of taking Dimensions, and setting them

down in a Pocket-book, or the like. See *Building*, Numb V. §. 2, 3, 4, 5. where also you will find a Bill of Measurement of Glazier's Work.

And for the manner of Computing the Quantity. See *Cross-Multiplication*

IV. Of the Price of divers sorts of Glazier's work.] The different sorts of Glazier's Work which we shall here mention, are these following, *viz* Glazing with Squares, and with Quarries.

And, 1. Of Glazing with Squares for the Price of Crown, French, German, Dutch, and English Glass wrought in Lead, and set up. See Numb. III, &c. of Glass.

As to the Price of Square-work, the Master finding Glass, and the Glazier Lead, Sodder, and Workmanship, 'tis worth about  $2\frac{1}{2}$  d. per Foot; but they will be (in the Country) paid 3 d per Casement for pinning of them, (which is putting of Lead-pins thro' the Iron-frame, and soddering them, thereby to fix the Glass to the Frame) *viz*. Casements of  $4\frac{1}{2}$  Foot long, and so proportionably, if they find Lead or Sodder for it.

But to work up Squares and set up, finding nothing but Workmanship, its worth about 1 d. or  $1\frac{1}{2}$  d. per Foot.

2. Of Glazing with Quarries, which is for the most part done with *Newcastle-glass* which see for the Price of new Work and Materials. Numb. VII.

But if the Glazier find only Lead, Sodder, and Work, 'tis worth about 3 d. per Foot. But if

if they find nothing but work, then  $1 \frac{1}{2} d.$  or  $2 d.$  is a sufficient Price.

For taking down *Quarry-glass*, scouring it, and soddering it anew, and banding, and setting up again, the usual Price is  $1 \frac{1}{2} d.$  per Foot.

But if it be in Churches where they say they have usually more Banding, &c. their Price is  $2 d.$  per Foot. They have also  $2 d.$  per Foot for taking down, scouring, soddering, banding, and setting up again of the old fashion'd Work, which is composed of pieces of Glass of different Sizes and Figures.

As to the Quantity of Lead used in any Number of Feet of Glass. See Lead. Num. 10.

I find by Mr. *Leybourn*, that in *London* they generally use that size of Quarries, call'd  $12 s.$  the which he thus describes. Quarries, (saith he) for the most part are 6 Inches in length from one Acute Angle to the other, and in breadth from Obtuse Angle to Obtuse Angle 4 Inches; so that each Quarry, saith he, contains 12 Superficial Inches; which sort is that which they call long Quarries. See P. *Quarries*.

N. B. That there are several Appellations given to the various Dimensions, &c. of Quarries, viz. 1. The *Range* which is a Perpendicular let fall from one of the Obtuse Angles to the opposite side. 2. And the Length is the longest Diagonal from one acute Angle to the other. 3. The Breadth is the shortest Diagonal, which is drawn between the two Obtuse

Angles; as for the Sides and Area of a Quarry, I think all know that.

You will find in the word *Quarries*, that there have been, or still are 12 sorts of *Quarries*; from whence there arises divers Propositions, of great use to Glazier's. As 1. To find any of the five fore-cited Dimensions, as Range, Side, Length, Breadth, and Area, of any of the sort of Quarries. 2. To find the Area of any sort of Quarries. 3. Having any of the Dimensions given, viz. Range, Side, Breadth, or Length; to find the Name, or Denomination of the Size, viz. Whether 8 s. 10 s. 12 s. &c. 4. Having the Area of a Quarry given, to find of what sort or size it is. 5. To find whether a Window be Glazed with those they call square Quarries or long ones; for you must note there are six sorts of sizes or Quarries, and six sizes of long Quarries, which makes 12 sorts in all, as I told you before. Altho' I am sensible that these five Propositions (but just now mentioned) would be acceptable to Glazier's, and some other ingenious Persons, yet I must here evade them as not being necessary to the Design of this Book. *Glazier's Bill*. See Building. See 7.

### *Gothick.*

*Gothick*, or *Modern Architecture*, is that which is far remov'd from the Manner and Proportions of the *Antique*, having its Ornaments wild and chyme.

chimerical, and its Profiles incorrect. However, it is oftentimes found very strong, and appears very rich and pompous; as, particularly in several of our *English* Cathedrals. This Manner of Building came originally from the North, whence it was brought by the *Goths* into *Germany*, and has since been introduced into other Countries.

### *Gradatory.*

'Tis derived from the Latin, and is used to signifie a Place to which we go up by Steps, particularly an Ascent from the Cloister to the Quire in some Churches.

### *Granary.*

A Place to lay up Corn in. Sir *Henry Wotton* advises to make it toward the North, as much as may be; because that Quarter is most Cool and Temperate.

Mr. *Worlidge* saith. That the best *Granaries* are built of Brick with Quarters of Timber wrought in the in-side, where to nail the Boards, with which the in-side of the *Granary* must be lined so close to the Bricks, that there be no room for Vermine to shelter themselves. There may be many Stories one above another, and let them be near the one to the other; for the shallower the Corn lieth, the better, and it is the easier turned, which it must be sometimes

Some have had two *Granaries*, one above the other, and

filled the upper with Wheat, or other Corn, this upper one had a small Hole in the Floor, by which the Corn descended into the lower one, like the Sand in an Hour-glass, and when it was all come down into the lower *Granary*, it was then carried up again into the upper one; and so it was kept continually in Motion, which is a great Preservation to the Corn.

A large *Granary*, full of square Wooden-pipes, may keep Corn long from heating.

### *Grange,*

From the Latin Word *Grana*, a Building which hath Barns, Stables, Stalls, and other necessary Places for Husbandry.

### *Grates.*

See *Iron* Numb. 4.

### *Great Bricks.*

See *Bricks*. Numb. IV. § 9.

### *Grotesque, or Grottesca.*

See *Antick*.

### *Ground.*

To build on ] See *Foundation*, Numb. II. §. 1, 2, 3, 4, 5, and 6.

### *Ground-guts.*

See *Alder*. Numb. III.

*Ground-*



### Ground-Plat, or Plot.

1. *What*.] A piece of Ground which a Building is to be erected upon

2. *Of Valuing*] See *Foundations*. Numb. 3.

### Ground-plate.

See *Sell*.

### Grove.

A Term used by *Joiners*, to signify the Channel that is made by their Plow in the Edge of Molding, or Stile, or Rail, &c. to put their Pannels in in Wainscotting.

### Guttæ.

See *Architrave*. Numb. 6.

### Gutters.

1. *What*] Those which we shall here treat of, are *Vallies* in the Roofs of *Buildings*, and these are of two Kinds in respect of their Position; for they are either something near a Paralleism with the Horizon, or inclining towards a Vertical Position to the Horizon.

Of the first kind of *Gutters*, (which, for Distinction sake, I will call *Parallel*) there are three sorts which are cover'd with Lead; for 1<sup>st</sup>. Either it is a *Gutter* betwixt two Roofs, which stand Parallel to each other, being made upon the Feet of the Rafters of two Roofs which meet together. Or, secondly, A *Gutter* where a

*Building* hath a *Cantaliver*, or *Modilion Cornice*, which projects  $1\frac{1}{2}$  Foot, or two Foot, (according to the Design of the *Building*) beyond the Walls, then the Roof is set with the Feet of the Rafters, no farther out than the Walls, but rather within it; so that the Joists of the upper Floor lie out beyond the Walls, and also beyond the Feet of the Rafters which is yet cover'd with Lead. The third sort of these parallel *Gutters*, are in these Roofs that are flat, commonly called *Platforms*, where are also *Gutters* for the Water that runs from the Platform to descend to, which is from thence conveyed off from the *Building*, either by Spouts or Pipes.

Having described the *Parallel Gutters*, we are next to treat of the *Vertical Gutters*. By *Vertical Gutter*, I mean such a one as is made by two Roofs meeting at Right Angles, one to the other, or which is the same Thing (but in other Words) it is made by the end of one Roof joyning to the side of another: As for Example, If a Building be erected in the Form of a Roman L, 'tis then common to have 1 *Gutter* on the inside of the L, But if it resembles a T, it hath two *Gutters*, but if like an H, then 4. These *Gutters* also are of two sorts, viz. Either *Lead* or *Tile*. Of all which we shall speak in their Orders. Having given the Definition of *Gutters*, I shall now proceed to treat

2. *Of laying Parallel Lead Gutters*.] In speaking to this Head, before I proceed to treat

treat of laying the *Lead*, I must here give a necessary Caution, which is this, *viz.* To take care that the *Gutter Boards*, &c. lie not too near a Parallellism with the Horison, but in such a Position, that it may have a good *Current* (as Workmen phrase it; ) for if it be laid too near a Level the Water is very subject to stand in Splashes, if the Gutter chance to sink a little in the middle, which some *Gutters* are most apt to do; but this is as they are posited on the Building.

I have observed some *Gutters* to have a Layer of Sand for the *Lead* to lie upon; but this way I do not approve of for two Reasons, which are these, *viz.* 1. Because some sorts of Sand I have observed corrode and decay the Timber that lies near it very much. 2. When 'tis laid on Sand, a very little Squatting *viz.* by jumping upon it with the Heels of ones Shoes will dent it, and there the Water immediately stands, which is a Means to decay the Lead the sooner.

In laying of Lead for *Gutters* upon *Boards*, if they are so long that one Sheet of Lead will not reach them, then 'tis common (for some Plumbers) to sodder them; for which Purpose they cut a Channel cross the Gutter boards at the End of the Sheet, where the Soddering must be; and into this Channel they beat down the Ends of both the Sheers (that are to meet there) into the Channel; which, when

they have done, there will remain a little Cavity, which the Sodder fills up level with the rest, when it is soddered.

The Lead which they commonly lay in *Gutters*, is that which weighs about 8 or 9  $\frac{1}{2}$  lb. to the Foot. Of these *Gutters*. V. P. Lead Num. 6.

III. Of *Vertical Gutters*.] These *Gutters*, as I told you before, are of two sorts, *viz.* *Lead*, and *Tile*: As to the *Lead* ones I shall say nothing here, being almost the same in Effect as the Parallel ones. Only unless the Builder will be at the Charge, the Lead need not be altogether so thick for these *Vertical* ones; for if they are laid with Lead of but 6 or 7  $\frac{1}{2}$  lb. to the Foot, these *Vertical Gutters* will last as long as the Parallel ones with Lead of 8, 9, or 10  $\frac{1}{2}$  lb. to the Foot.

*Gutters* laid with *Tiles*, are also made of two kinds of *Tiles*, *viz.* *Concave*, (or *Gutter*) and plain *Tiles*; I shall here say little of the Concave, or *Gutters*, but refer you to the Description of *Gutter-tiles*.

*Plain Tile Gutters*, are also distinguished into two Sorts, *viz.* 1. *Plain-tile gutters*, (properly so call'd) and secondly, 3 Point *Gutters*, of both which I will treat in their Order. And,

1. Of *Plain-tile-gutters*, (properly so call'd) in these *Plain-tile-gutters*, there is a *Gutter-board* laid which raises them from pointing to an Angle: And in laying on the *Tiles*, the Workman begins at one side of the *Gutter*, and so works cross it as if it were plain Work,

Work, and then brings the next row of Tiles back again; so that he works forth and back, or to and fro from right to left. So that *Gutters* laid after this Method are not Angular, but of a kind of distorted *Curvilinear* Form; by which Means they are not so subject to be furred up with the Mortar which washes out of the adjacent Tiles.

2. Of *Three Point gutters* ]

This is the second sort of *Gutters* which are laid with plain Tiles: In laying of which, they begin and lay one Tile on one part of the Roof, (it matters not which part first,) and lay one corner of the Tile just in the middle of the *Gutter*, and then they lay another on the other part of the Roof with his Corner just in the middle of the *Gutter* also; so that the Corner of the second Tile is contingent with the first; and then lay another Tile in the *Gutter*, with his Corner, (as it were) betwixt the other two, and to them: Having so done, they persist in their Work, and lay a Tile on each part of the Roof, as before, and another betwixt them in the *Gutter*: After this manner they go on with their Work, till they have finished the *Gutter*: And this is what they call a *Three Point Gutter*; for there always comes three Points, (or Angles) of Tiles together, (*viz.* 1 Angle of three distinct Rules) which makes it very uniform and handsome. You are here to note, That only three Inches square of the middle Tile is

visible, (if the Gage be 7 Inches,) the rest of that Tile being cover'd with the next row of Tiles above it.

Tho' these *Gutters* are very handsome, and if well done very secure also; yet if they let the Water into the House, (by reason of some Stoppage, or broken Tile in the *Gutter*,) they are very troublesome to mend.

IV. Of *Measuring Gutters*,] or *Vallies*. In different Parts of the Kingdom there are commonly diverse Customs, as to this matter of measuring *Vallies*, or *Gutters* in *Tiling*: For, first, At some Places, they but seldom or never allow any thing for the *Gutters*, but include it with the rest of the Roof, at flat and half: I am informed, That at *London* they but seldom measure the *Gutters*; but only as they are part of the Roof, so they are included in the Flat and  $\frac{1}{2}$  Measure. And I know some Workmen at *Tunbridge-Wells* never demand any other, but only as it is included in the Plain Measure; which is an Area found by Multiplication of twice the length of the Rafter, by the length of the Building Or which is the same Thing (when it is  $\frac{3}{4}$  Pitch,) the Flat and  $\frac{1}{2}$  Flat.

2. In laying of *Gutters* with Concave tiles, the Workmen in some parts of *Suffex* and *Kent*, have gotten a Custom to be allowed so many Foot more than the plain Measure, as there are *Gutter tiles*, (and also including *Corner tiles*, *Ridge tiles*, *Dorman tiles*) in the whole Roof.



3 At some other Places, I know they claim so many Feet more to be added to the Plain-measure, as the *Gutters*, (and also *Corners*) are in Length, including *Gutters* at the Sides of *Dormans* and *Lutherns*, if there be any *Dorman-tiles* used.

4. In some Places the Workmen claim a Custom of having double Measure for *Plain-tile*, (especially three Point) *Gutters*, e. g. If there were but 1 *Gutter* in a Roof, and this *Gutter* 15 Foot long, then their Custom is to have 30 Foot more than the Area of the Roof amounts to; and this Method some Workmen claim as a Custom in both sorts of *Gutters* with *Plain-tiles* Either of these *Plain tile-gutters* are cheaper to the Master Builder, than *Concave* ones; because *Plain tiles* are cheaper than *Gutter tiles*, being not above  $\frac{1}{4}$  part of the Price in many Places. And then again, in case the Workman be allowed so many Foot more (than the Area of the Roof,) as there are *Gutter-tiles*, that will be  $\frac{1}{2}$  as much more as the double Measure; for if it be gaged so slight as 8 Inches, than in a *Gutter* of 15 Foot long, there would be 45 Tiles, which will be reckon'd 45 Foot; whereas at double Measure it did amount to but 30 Foot.

5. I find there is yet another way of computing double Measure; for the Account of which I will refer you to *Slating*. Numb 5.

I am informed, that at *London* *Plain-tiles* are used much for *Gutters*.

### *Guttering.*

In Carpentry, is commonly done by the Lineal Foot, which some *Londoners* value at 1 s. viz. Materials and Workmanship.

### *Gutter-tiles.*

1. *What.*] Are whilst they are flat and plain, (before they are bent fit for the Work for which they are design'd) seemingly at a distance a kind of a Triangle with one Convex side. But tho' they seem so at a distance, they are not really so; for they are Quadrangular Figures, consisting of two straight sides of about 10 or 10  $\frac{1}{2}$  Inches long (they ought to be) and of two circular Sides, one Convex, the other Concave, the Convex side is about 14 Inches, and the Concave one about two Inches. this is their Form as to their Edges or Sides, and I will next describe the Form of them in respect of the Plain; at the little End they are bent Circular, and so likewise at the Convex great End, at first like a *Corner tile*, but then they bend the Corners of the broad End back again; so that if one look against the broad Ends Edge, it consists of a Circular Line betwixt two straight ones, like the upper part of the Character for the Sign of *Libra*, thus  $\text{♎}$ ; this you must note is when you hold the Concave side of the Tile downwards These Tiles are laid with their broad Ends, and hollow sides upwards.

2. *Of their Weight.*] An Experiment was made to find the Gravity of some of these Tiles, and I found by Computation, That 100 of these Tiles, whose Dimensions were as followeth, *viz.* 10 Inches on the straight Edges, 14 Inches on the greater Convex Edge, when pressed down flat, as when they were in the Mould, and two Inches at the Concave Edge, and about  $\frac{5}{8}$  Inch thick: I say 100 of these weigh'd about 321, or 322  $\text{lb}$  and by Consequence 1000 will weigh about 3210, or 3220  $\text{lb}$ . which is near 29 C weight. So by Consequence about 682 would be a Tun weight.

3. *Of their Price.*] Mr. Leyburn saith, That at London they are sold at 1 *d.*  $\frac{1}{2}$ , or 2 *d.* per Tile, or between 10 and 15 *s.* per 100. in some Places their constant Price is 1 *d.*  $\frac{1}{2}$  per Piece, or 12 *s.* per Hundred.

### Hack.

**W** Hat. See Bricks Numb. 12.

### Hair.

1. *What* ] The Hair here mentioned is Bullocks, &c to put in white Mortar, of the Quantity of a certain Quantity of Lime. See Mortar, Numb. 4

2. *The Price* ] As to the Price, 'tis various, according to the Plenty or Scarcity of it. At some Places in Kent I have known it sold for 7 *d.* per Bu-

shel, and at other Places, *viz.* in *Suffex*, I have known it sold for 10 *d.* and 12 *d.* per Bushel; so that its Price by the Load (for a Horse), which is 60 Bushels, is from 30 to 60 *s.*

### Half-round.

*What.*] See Capital. Numb. 2.

### Halls.

*Of their Dimensions* ] According to a noted French Architect, ought to be in Length twice and  $\frac{1}{4}$  its Breadth, at least, and in great Buildings, he saith You may well allow the Length to be three Times the Breadth: He further adds, That this last Length will be the most beautiful and convenient.

As to the Height of Halls, it may be  $\frac{2}{3}$  of the Breadth, or about 16 or 18 Foot in noble Buildings

In great Buildings, the Hall, and other Rooms of the first Story may be arched, by which Means they will become much handsomer, and less subject to Fire: The Height is found by dividing the Breadth of the Hall into six Parts, and five of those shall limit the Height of the Room from the Floor to the under side of the Key of the Arch.

### Hangs over.

*What* ] See Batter.

### Hanse.

*What.*] See Arches, Numb 6. Heads.

*Heads.*

*What*] A Term used by Bricklayers, by which they mean  $\frac{1}{2}$  a *Tile* in Length, but to the full Breadth of a *Tile*; these they use to lay at the Eaves of a Roof.

*Heading Architrave.*

See *Architrave* Numb. 2.

*Healing.*

*What*] By this Word is understood the covering of the Roof of any Building, which is of various Kinds, viz. 1. *Lead*, 2. *Tiles*. 3. *Slate*. 4. *Horsbam Stone*. 5. *Shingles*. 6. *Reed*. 7. *Straw* An Account of all these sorts of *Healing*, you may find under these *Heads*, viz. *Lead*, under that Head. *Tiles*, under *Tiling*; *Slate* under *Slating*; *Horsbam stone*, see the same Word; *Shingles*, and *Shinglings*, *Reed* and *Straw*; see *Thatching*.

*Hearth-stones.*

See *Fire-stones*.

*Heel.*

An inverted *Ogee*. See *Cima*.

*Helix.*

*Helix*, or *Urilla*, is a little volute *Gaulicole*, or *Stalk* under the Flower of the *Corinthian Capital*. The Word is mere Greek. and signifies a kind of *Ivy*, whose *Stalk* is twisted like the *Vine*.

*Hinges.*

1. *What*.] Are those necessary Irons, by Means of which, all Doors, whether of Houses, (or other Buildings.) or of Pews, Cupboards, &c. all Lids of Boxes, Chests, Trunks, &c. Folds of *Tables*, *Beds*, *Bureaus* *Scrutores*, &c. make their Motion, whether of opening or shutting, or of Folding, &c.

2. *The Sorts or Kinds*.] The Species of Hinges are many, viz *Red*, *Box*, *Butts*, *Casement*, *Lancashire*. and smooth filed; *Casting*, *Chest black*, *Lancashire*, smooth filed, *Coach Desk*, *Dove-tails*, *Esses*, *Folding*, *Garnets*, *Dozen-ware-long*, *Dozen-ware-short*, *VWeighty long*, *VWeighty-short*, *Lamb-heads*, *Port*, *Side-Lancashire*, *Side-smooth-filed*, *Side with rising Joints*, *Lancashire* and *Smooth-filed*, *Side with Squares*, *Screw*, *Scuttle*, *Shutter*, *Lancashire*, and *Smooth-filed*, *Stall*, *Trunk of fundry sorts*. *Joints*, *Lancashire Dozen-ware*, with *Hooks*, *Dozen-ware long*, *Dozen-ware short*, *weighty long*, *weighty short*.

3. *The Price of some Sorts of Hinges*.] As to the Value of Hinges, I shall not now stay to insist upon the usual Price of all sorts, but shall give the Reader a brief Account of some sorts that are pretty commonly used: And first, of *Butts*, of which there are different Sizes, and by Consequence of various Prizes, viz from 2 s. or 2 s. 6 d. to 5 s. per Doz.

2. *Bed-hinges*, from 5 to 7 s. per Doz.

3. *Box-hinges*, from 12 d. to 4 s. per Doz.



4. — Small Brass ones, from 2 s. to 2 s. 6 d. per Doz.

5. Dovetails, from 12 d. to 4 s. per Doz.

6. Hooks and Hinges, &c. per lb. from 3  $\frac{1}{4}$  d. to 4 d.

7. Side-hinges, from 3 s. to 36 s. per Doz.

8. — With a Square, from 20 s. to 36 s. per Doz.

9. Screw-hinges, from 30 s to 48 s per Doz.

See *Iron*. Numb. 4.

### Hip.

1. *What* ] Are those Pieces of Timber which are at the Corners of a Roof, they are a great deal longer than the Rafters, by reason of their oblique Position, and they are placed not with a Right or Square-Angle, but a very oblique one; and by Consequence they are not, (or at least ought not to be) square at any Angle, (as Rafters are not at all) but bevel at every one of them; and which is yet more, as Rafters have but 4 Plains, these commonly have 5. They are commonly by Countrey-workmen call'd *Corners*, and some call them *Principal Rafters*, and others *Sleepers*. The

Truth is, *Hips* and *Sleepers*, are almost the same; only the *Sleepers* lie in the *Vallies*, (and join at the Top with the *Hips*): But those Surfaces, or Plains which make the back of the *Hip*, are the under-sides of the *Sleeper*.

2 *Back, or Back of a Hip, what* ] By the *Back of a Hip*; you are to understand, is meant those two Superficies, or Plains on the outside of the *Hip*, which lie Parallel, (both in respect of their Length and Breadth,) with the Superficies of the adjoining Side and End of the Roof.

3. *Mould, what.* ] By the word *Hip mould*, some mean the same as the *Back of the Hip*. But some others understand it to mean, the Prototype, or Pattern, (which is commonly made of a piece of thin Wainscot), by which the Back and Sides of the *Hip* are set out.

4. *Of finding the Lengths and Backs of Hips, &c. in square Frames.* ] I shall here, not only give you the Method of finding the Length of *Hips*, or *sleepers*; but also of the *Rafters*, *Diagonals*,  $\frac{1}{2}$  *Diagonal* and *Perpendicular*. And that in a brief Analogical Table, say,

Foot			
As 20	15, 00	:: Breadth of the House:	ten. of the Rafter.
	18, 00		ten. of the Hip.
	11, 18		Perpendicular.
	28, 28		Diagonal.
	16, 63		Nearest Dist.

Hip Angles	at foot—38—22	Rafter Angles at	top 41—50
	at top—51—28		foot 48—10
	at back—116—12		

The Angles are always the same in all square Frames that are true Pitch.

5. *Roof, what.*] By a *Hip Roof*, you are to understand such a *Roof*, as hath neither *Gable-heads*, nor *Shread-head*, or *Jirk-in-head*, (by which we mean such Heads as are both *Gable* and *Hip* at the same End; for 'tis a *Gable*, or upright as high as the *Collar-beam*, and then there is two short Hips which shut up with their Tops to the Tops of a pair of Rafter, which Country Carpenters call *Singlars*) For a *Hip Roof* hath Rafter as long, and with the Angles at the Foot, &c. at the ends of Building, as it hath at the Sides, and the Feet of the Rafter on the Ends of such Buildings as have *Hip-roofs*, stand on the same Plain, (*viz.* Parallel with the Horizon) and at the same Heighth from the Foundation with the Rafter on the Sides of the Roof. These *Hip-roofs*, some call *Italian Roofs*.

6. *Of measuring Hip-roofs*] As to measuring of *Hip-roofs*, if they are  $\frac{1}{4}$ , or true Pitch, as it is commonly called; then 'tis only to multiply the Length of the Building by the Breadth, and to the Area thus found, add half as much more, or else multiply the Length by the Breadth and  $\frac{1}{2}$ ; or the Breadth by the Length and  $\frac{1}{2}$ , either of these three ways will produce the flat and  $\frac{1}{2}$ , which is equal to the Content of the Roof in plain Measure, if there be nothing allowed for *Hips* and *Vallies*: But if the Roof have no Cornice, but the Rafter have Feet, then they must be

added, and also the Eaves Board in a Bill of Measurement.

Or to measure such a Roof, you may multiply the Length of it by the Length of the Rafter, and it shall give you half its Content; or else multiply the length of the Building by twice the length of the Rafter; and then you will have the whole Content.

### *Hip tiles.*

See *Corner tiles*, or *Tiles.N.V.*

### *Hollow.*

A Term in Architecture, by which is meant a Concave Molding, being about a Quadrant of a Circle; by some it is call'd a *Casement*, by others an *Abacus*.

### *Hooks.*

Are a necessary Utensils which are made use of for several Purposes in Buildings, &c. They are of various sorts; some of Iron, and others of Brass: I shall here mention the Names of some, which take as followeth, *viz.* 1. *Armour-hooks*, (these are generally of Brass, and are to lay up Arms upon; as Guns, Muskets, Halberts, Halt-pikes Pikes, Javelins, &c. 2. *Casement hooks.* 3. *Chimney-hooks*, which are made both of Brass and Iron and of different Fashions: Brass ones I have known sold from 2 s. to 2 s. 6 d. per pair, the Iron ones from 12 d. to 1 s. 6 d. per pair, their use is to set the Tongs and

Fire-shovel against. 4. *Cur-tain-hooks*. 5. *Hooks for Doors, Gates, &c.* These are from 3 d  $\frac{1}{4}$  to 4 d. per lb. 6. *Double-line-hooks*, large and small. 7. *Single-line-hooks*, large and small. 8. *Tenter-hooks*, of various sorts, viz. 2 d. 3 d. 4 d. 6 d. 10 d. 20 d. and 40 d.

### *Horsham-stone.*

1. *What.*] Is a kind of thin broad Slate of a greyish Colour, much used in some parts of *Sussex* formerly not only to heal, or cover Churches and Chancels, but some great Houses also; it is call'd *Horsham-stone*, in that County, because it is for the most part brought from a Town there called *Horsham*; this sort of Stone, or Slate rather, is laid of different Sizes, viz. From 8 or 9 Inches, to 24 Inches, or more in length, or breadth &c. It is commonly from  $\frac{1}{2}$  Inch, to 1 Inch thick.

2. *Of the Price of Horsham-stone.*] The value of them is according to the distance from the Quarry. viz. From 10 to 20 s. per Load, I have known a Load of them laid in for 17 or 18 s. at 18 or 20 Miles distance from the Quarry. A Load of these, (as I have been inform'd by those that have made some Observations on this Matter,) will cover about  $\frac{1}{4}$  of a Square.

3. *Of Laying*] The Price of laying a Square and Pointing, (which is striking Mortar under the lower ends) in new Work, 5 or 6 s. But to rip it from old, and new lay and

point it, not less than 6 or 7 s. per Square, which is the lowest I ever knew it done for.

4. *Of the Weight of this sort of Healing.*] I have been informed by an observing Mechanick, that a Square of this kind of covering will weigh about 33 or 34 C. weight: Whereas, saith he, a Square of *Tiling* doth not weigh above 16 or 17 C. weight. Nay, he is confident not above 18 C. weight, if it be gaged at 6 Inches, and the Tiles not exceeding 10 Inches long (Nay, I know that in many Places they fall short of that.)

5. *Of the Properties of this sort of Covering.*] From what hath been said before, you may easily gather that this sort of Healing is dearer than Tiles; for the Charge of a Square of *Tiling*, is from about 23 s. to 30 s. or some will have it from 24 to 28 s. per Square; whereas I find by Calculations from some Observations, a Square of Healing with *Horsham-stone*, will be worth from 32 s. to 38 s. And besides for this sort of Covering, the Timber for the Roof, ought to be considerably stouter and stronger, because a Square of this sort of Stone is almost as heavy again as a Square of *Tiling*. Now that which I suppose to be the cause why these Stones have been so much in use for Churches, &c. must be, because they are far more durable than Tiles; which makes some Recompence for the Charge; for some say these Stones are very durable, being for the most part very hard, so that no Weather



ther will do them any hurt, as it will Tiles.

### House.

I. *What.*] 'Tis a thing so well known, that every one that knows any thing, is sensible of the Contrivance whereby Men preserve themselves and their Goods from the Injuries of the Weather, and other Inconveniencies.

In treating of this word, *House*, I shall here do these four things. *First*, Discourse concerning the Situation of a Country-house. *Secondly*, of the Ground-work of houses *Thirdly*, Concerning Building in *London*. *Fourthly*, and *lastly*, Discourse of Party-walls.

The Reason why I shall add no more under this Title, *House*, is this ; because I sufficiently treat of these six things, *viz.* *Situation* *Contrivance*, *Receipt*, *Strength*, *beauty*, and *Form*, or *Figure*, in the Word *Building*.

2 *Of the Site of a Country house* ] To what I have said, concerning the Situation of a Country-house, in the word *Building*, I shall here add, That Woods, as well as Water, ought to be near your Country Habitation ; they being the principal Things that adorn a Rural Seat : But if you cannot conveniently Seat your *House* among the Trees, yet there are but few Places, but you may speedily raise Trees about your House ; according to Mr *Evelyn's*, or Mr. *Worlidge's* Directions.

It is far better to have a House, defended by Trees than Hills, for Trees yield a Cooling, Refreshing, Sweet, and Healthy Air, and Shade, during the Heat of the Summer, and very much break the cool Winds and Tempests from every Coast in the Winter. The Hills, according as they are situated, defend only from some certain Winds ; and if they are on the *North* side of your House, as they defend you from the cold Air in the Winter, so they also deprive you of the cool refreshing Breezes which are commonly blown from thence in the Summer. And if Hills are situated on the *South* side, it then proves also very inconvenient. Besides, they yield not the Pleasures and Contentments, nor the Varieties of Obliterations to the ingenious Rustick, as the tall Plumps of Trees, and pleasant Groves do. Yet Hills which are cloathed with Coppices, or otherwise improved are pleasant Objects, if they stand not too near a House.

Let not your House be too low seated, lest you lose the Conveniency of Cellars ; but if you cannot avoid Building on low Grounds, set the first Floor above the Ground in your House the higher, to supply what you want to sink in your Cellar in the Ground ; for in such low and moist Grounds, it conduceth much to the dryness, and healthiness of the Air to have Cellars under the House, so that the Floors be good and ciled underneath.

Not to speak of the Building of Places, or Seats, for the Nobility, or Gentry, but only of plain and ordinary *Farm-houses*. I have thus much observed, (saith Mr. *Worlidge*) that Houses built too high in places obvious to the Winds, and not well defended by Hills, or Trees, require more Materials to build them, and more also of Reparations to maintain them, and are not so commodious to the Inhabitants as the lower built Houses, which may be made at a much easier rate, and also as compleat and beautiful as the other.

3. *Of the Ground-work of Houses.*] Buildings, or Houses, that are not above two Stories with the Ground-room, and not exceeding 20 Foot to the Raifon-place, and upon a good Foundation, the length of two Bricks, or 18 Inches for the Heading course, will be sufficient for the *Ground-work* of any common Structure, and 6 or 7 Courses above the Earth to a Water-table, where the thickness of the Walls are abated; (or taken in) on either side the thickness of a Brick, namely.  $2\frac{1}{4}$  Inches.

But for large and high Houses, or Buildings, of 3, 4 or 5 Stories with the Garrets: The Walls of such Edifices ought to be from the Foundation to the first Water-table. 3 Heading course of Bricks, or 28 Inches at the least, and at every Story a Water-table, or taking in on the inside for the Summers, Girders, and Joysfs to rest upon, laid into the middle, or  $\frac{1}{4}$  of the Wall, at least

for the better Bond. But as for the innermost, or Partition-wall, one  $\frac{1}{2}$  Brick will be of a sufficient thickness: And for the upper Stories a 9 Inch (or Brick length) Wall will a very well suffice.

4. *An Act concerning Building of Houses in London*] What here follows is so much of the Act only as relates to the *Bricklayers' work*, viz. The heighths and numbers of Stories, and thickness of Walls of the four several Rates of Houses, which is as follows.

And be it further Enacted, That the Houses of the first and least sort of Building, fronting by Streets or Lanes, as aforesaid, shall be of two Stories high, besides Cellars and Garrets, that the Cellars thereof be  $6\frac{1}{2}$  Foot high, if the Springs of Water hinder not; and the first Story be 9 Foot high from the Floor to the Ceiling, and the second story be 9 Foot high from the Floor to the Ceiling; that all the Walls in Front and Rear, as high as the first Story, be of the full thickness of the length of two Bricks, and thence upwards to the Garrets of the thickness of one Brick and half; and that the thickness of the Garret Walls on the back part be left to the Discretion of the Builder, so that the same be not less than one Brick a length; and also that the thickness of the *Party walls* between these Houses of the first and lesser sort of Buildings be 1 Brick and half as high as the said Garrets, and that the thickness of the *Party-walls* in the Garret

Garret be of the thicknes of the length of 1 Brick, at least

And be it further Enacted, That the Houses of the second sort of Building fronting Streets, and Lanes of Note, and the River of *Thames* shall consist of three Stories high, besides Cellars and Garrets, as aforesaid; that the Cellars therof be six Foot and an half high, (if the Springs hinder not) that the first Story contain full 10 Foot in heighth from the Floor to the Ceiling: The second full 10 Foot: The third 9 Foot: That all the said Walls in Front and Rear, as high as the first Story, be two Bricks and an half thick; and from thence upward to the Garret-floor, of one Brick and an half thick; and the thicknes of the Garret Walls on the back part be left to the Discretion of the Builder; so that the same be not less than one Brick thick: And also that the thicknes of the Party-walls between every House of this second, and larger sort of Building be two Bricks thick as high as the first Story, and thence upwards to the Garrets, of the thicknes of one Brick and an half.

Also, that the Houses of the third sort of Buildings, fronting the high and principal Streets, shall consist of four Stories high, besides Cellars and Garrets, as aforesaid: That the first Story contain full ten Foot in heighth from the Floor to the Ceiling, the second ten Foot and an half, and the third nine Foot, the fourth 8 Foot and an half: That all the said

Walls in Front and Rear, as high as the first Story be two Bricks and an half in thicknes, and from thence upwards to the Garret-floor, of the thicknes of one Brick and an half: That the thicknes of the Garret-walls on the back part be left to the Discretion of the Builder, so as the same be not less than one Brick: And also that the Party-walls between every House of this third and larger sort of Building, be two Bricks thick as high as the first Floor, and thence upwards to the Garret floor, the thicknes of one Brick and an half.

And be it further Enacted, That all Houses of the fourth sort of Building, being *Mansion-houses*, and of the greatest Bigness, not fronting upon any of the Streets, or Lanes, as aforesaid, the number of Stories, and the Heighth thereof, shall be left to the Discretion of the Builder, so as he exceeds not five Stories.

Also the same Act enjoyns, That no *Timber* be laid within twelve Inches of the fore side of the *Chimney jams*, and that all *Joysts* on the back of any *Chimney* be laid with a *Trimmer*, at six Inches distance from the Back: Also that no Timber be laid within the Tunnel of any Chimney, upon Penalty to the Workman, for every Default 10s and 10 s. every Week it continues unreformed.

Thus far the Act.

*Note.* further, When you lay any *Timber* on *Brick-work*, as *Tassels*, (or *Torsels*) for *Mantle-Trees* to lie on, or *Lintels*



over Windows, or *Templets* under Girders, or any other Timbers; lay them in *Loam*, which is a great Preserver of Timber; for Mortar eats and corrodes the Timber: Likewise the Joyst ends, and Girders which lie in the Walls, must be loamed all over to preserve them from the Corroding of the Mortar. Some Workmen pitch the ends of the Timber that lie in the Walls to preserve them from the Mortar.

5. *Concerning Party-walls* ] In discoursing of this Matter, I will present the Reader with two different Methods of valuing such Walls according to two different Surveyors, viz. Mr. *Leybourn*, and Mr. *Philips*.

And first according to Mr. *Leybourn*.

Now, (saith he) forasmuch as the *Buildings* in *London* joyn one upon another, and almost every severall house hath a distinct Proprietor, the Parliament hath decreed, That the Wall dividing the Proprietor's Ground, shall be built at the equal charge of both the Owners; it will not therefore be unnecessary to shew how these Party-walls are to be valued.

All Brick work, whether it be 1, 2, 3, 4, or any other number of Bricks lengths in thickness, are all to be reduced to the thickness of one Brick and an half.

It hath been observed (saith he) that about 4500 of Bricks, 100 and a quarter of Lime, 2½ Loads of Sand will compleatly raise one Rod of Brick-work, of a Brick and an half thickness.

	l.	s.	d.
Now 4500 of Bricks at 16 s. per 1000, is	3	12	0
A Hundred and quarter of Lime at 10 s per C.	0	12	6
Two Load and ½ of Sand at 3 s. per Load.	0	7	6

In all — 4 — 12 — 0

And thus much will a Rod of *Party-wall*, (the Materials only) reduced to Brick and ½ thick, amount unto at the former supposed Rates, to which may be added for Workmanship.

1 — 8 — 0

The whole Sum is — 6 — 0 — 0

So that for every Rod that is in a Party-wall, between Proprietor and Proprietor, they are to allow 3 l. a piece for every Rod of Party-wall. So that if a Party wall measured, and the measure reduced to a Brick and an half, should be found to contain 16 Rods, that 16 being multiplied by 3 l. giveth 48 l. and so much is the one Proprietor to allow the other.

But

But note by the way, That altho' this Rule here deliver'd be general, yet the Price of the Party-wall shall be more or less, according as Materials rise or fall. For sometimes a Rod of Wall of a Brick and an half thick, will cost but 5 *l.* 10 *s.* and then each Proprietor must pay but 2 *l.* 15 *s.* per Rod. Thus far Mr. *Leybourn* I will now add Mr. *Phillips's* Way.

Now, (saith he) having the Dimensions, both in length and height of the Cellar, and all other Stories in the House, then the following Tables will shew (according to the thickness of the Wall,) how many Bricks your Neighbour is to pay for towards his Party-wall.

For which purpose the ensuing Tables will serve very well; for these *Walls*, according to the Act of Parliament, for this purpose are to be made part of them two Bricks thick, part of them one Brick and half thick, and part of them one Brick thick.

Now knowing the number of Bricks which go to the making of the Wall, you may easily compute the Charge of the Mortar and Workmanship thereof, and from thence find the whole Charge, which you will find, (saith he) to be about 30 *s.* for every 1000 of Bricks, (I think Mr. *Phillips's* Price is too great; for I think 25 or 26 *s.* per 1000 is very well, but he acknowledges that Bricks then were something dear, *viz.* about 18 or 20 *s.* per 1000)

He then proceeds to an Example; suppose a House of the third Rate, the Party-wall thereof being thirty Foot long, and you would know how many Bricks are to be paid for towards this Party wall.

First, measure the Cellar where the Party-wall is to be two Bricks thick, the length whereof is thirty Foot, and the depth seven Foot; find this length in the side, and the depth in the top of the Table, and in the Square of meeting in the Table for one Brick thick, you will find 2314 Bricks are to be paid for.

Then proceed to the first Story, which will be likewise 30 Foot long, and 10 Foot high, and also 2 Bricks thick, the same Table shews the allowance for this

3306

The second Story also is 30 Foot long, and 10  $\frac{1}{2}$  high, but the Party-wall is to be but a Brick and  $\frac{1}{2}$  thick, the  $\frac{1}{2}$  whereof is  $\frac{3}{4}$  of a Brick, and this in the Table of  $\frac{3}{4}$  of a Brick, yields for 30 Foot long, and 10 Foot high.

2479

And for the  $\frac{1}{2}$  Foot more in height.

124

The third Story is 9 Foot high, and 30 Foot long, being likewise a Brick and half thick; and for this the Table shews the half to pay for it.

2231

The fourth Story is 8 Foot and a half high, and 30 Foot in length, for the 8 Foot the Table shews.

1983

and for the half Foot

124

All which added together, make

12559

which

which are to be paid for the half of the Party-wall, which at 26 s. per Thousand, comes to 86 l.—6 s.—6 d.

Thus you may see what any Party-wall comes to, tho' your Neighbour's House joyns never so little, or much to yours, as readily as you can by measuring by the Rod.

And whereas the Floors of the several Stories add somewhat to the height, you may add somewhat for them according as you find them in thickness.

*Lastly.* For the Garrets, the Walls thereof being but one

Brick thick, you may take half the number in the Table of one Brick's thickness, and add to the rest of the Account.

All the difference that can be between Neighbours herein, will be about the Price of Bricks, and the Lime, and Workmanship; but if Neighbours build together, they will easily determine it; but if they do not, yet the first Builder is sufficiently provided by his Workmen to rectifie his Charge, and by ACT of Parliament is allowed full Satisfaction, with Interest from the Time of his Building.





*A TABLE for 1 Brick in Thickness, or the half of  
2 Bricks.*

*The Walls height in Feet.*

	$\frac{1}{2}$	I.	II.	III.	IV.	V.
	Bricks	Bricks	Bricks	Bricks	Bricks	Bricks
1	5	11	22	33	44	55
2	11	22	44	66	88	110
3	16	33	66	99	132	165
4	22	44	88	132	176	220
5	27	55	110	165	220	275
6	33	66	132	199	264	331
7	39	77	154	231	309	386
8	44	88	176	264	353	441
9	50	99	198	298	397	496
10	55	110	220	331	441	551
11	61	121	244	364	485	606
12	66	132	264	397	529	661
13	72	143	286	431	573	716
14	77	154	309	462	617	771
15	83	165	331	496	661	826
16	88	176	355	529	705	882
17	94	187	375	562	749	937
18	99	198	397	595	793	992
19	105	209	419	628	837	1047
20	110	220	441	661	882	1102
21	116	231	463	694	926	1157
22	121	242	485	726	970	1212
23	127	253	507	760	1014	1267
24	132	264	529	793	1058	1322
25	138	275	551	826	1102	1377
26	143	286	573	860	1146	1432
28	154	309	617	926	1234	1543
30	165	331	661	992	1322	1653
40	220	441	881	1322	1763	2204
50	275	551	1102	1652	2204	2755

Foot long.

*A TABLE for I Brick in Thickness, or the half of  
2 Bricks.*

*The Walls height in Feet.*

	VI.	VII.	VIII.	IX.	X.
	Bricks	Bricks	Bricks	Bricks	Bricks
1	60	77	85	99	110
2	132	154	176	198	220
3	198	231	264	298	331
4	264	309	353	397	441
5	331	386	441	496	551
6	397	463	529	595	661
7	463	540	617	694	771
8	529	617	705	793	882
9	595	694	793	893	992
10	661	771	882	992	1102
11	727	848	970	1091	1212
12	793	926	1058	1190	1322
13	859	1003	1146	1289	1433
14	926	1080	1234	1388	1543
15	992	1157	1322	1488	1653
16	1085	1234	1410	1587	1763
17	1124	1311	1499	1686	1873
18	1190	1388	1587	1787	1983
19	1256	1466	1675	1884	2094
20	1322	1543	1763	1983	2204
21	1388	1620	1851	2083	2314
22	1455	1697	1939	2182	2424
23	1520	1774	2028	2281	2534
24	1587	1851	2116	2380	2645
25	1653	1928	2204	2479	2755
26	1719	2006	2292	2578	2865
28	1857	2160	2458	2777	3085
30	1983	2314	2645	2975	3306
40	2645	3085	3526	3967	4408
50	3306	3857	4408	4959	5510

*A TABLE for 3 Quarters of a Brick Thick, being the half of a Brick and half.*

*The Walls height in Feet.*

	$\frac{1}{2}$	I.	II.	III.	IV.	V.
	Bricks	Bricks	Bricks	Bricks	Bricks	Bricks
1	4	8	17	25	32	41
2	8	17	33	50	66	83
3	12	25	50	74	99	124
4	17	33	66	99	132	165
5	21	41	83	124	165	207
6	25	50	99	149	198	248
7	29	58	116	174	231	289
8	33	66	132	198	264	331
9	37	74	149	223	298	372
10	41	83	165	238	331	413
11	45	91	182	273	364	455
12	50	99	198	298	397	496
13	54	107	215	322	430	537
14	58	116	231	347	463	578
15	62	124	248	372	496	620
16	66	132	264	397	529	661
17	70	140	281	421	562	702
18	74	149	298	446	595	744
19	79	157	314	471	628	785
20	83	165	331	496	661	826
21	87	174	347	521	694	868
22	91	182	369	545	727	909
23	95	190	380	570	760	950
24	99	198	397	595	793	992
25	103	206	413	620	826	1033
26	107	215	430	645	860	1074
28	116	231	463	694	926	1157
30	124	248	496	744	992	1240
40	165	331	661	992	1322	1653
50	207	413	826	1240	1653	2066

Foot long.



*A TABLE for 3 Quarters of a Brick thick, being the half of a Brick and half.*

*The height of the Walls in Feet.*

	VI.	VII.	VIII.	IX.	X.
	Bricks	Bricks	Bricks	Bricks	Bricks
1	50	58	66	74	83
2	99	116	132	149	165
3	149	174	198	223	248
4	198	231	264	298	331
5	248	289	331	372	413
6	298	347	397	446	496
7	347	405	463	521	579
8	394	463	529	595	661
9	446	521	595	660	744
10	496	579	661	744	826
11	545	636	727	818	900
12	595	691	793	893	992
13	645	752	860	976	1074
14	694	810	926	1041	1157
15	743	868	992	1117	1240
16	793	926	1058	1189	1322
17	843	983	1124	1264	1405
18	893	1041	1190	1339	1488
19	942	1099	1256	1413	1570
20	992	1157	1322	1488	1653
21	1041	1215	1388	1562	1736
22	1091	1273	1455	1636	1818
23	1140	1331	1521	1711	1901
24	1190	1388	1587	1785	1983
25	1240	1446	1652	1860	2066
26	1290	1504	1709	1934	2149
28	1338	1620	1851	2083	2314
30	1488	1736	1983	2231	2479
40	1983	2324	2625	2975	3306
50	2479	2893	3306	3719	4132

Foot long.

6. I shall here *add an Abstract* of the *Act.*] Being a Table of Proportions for Brick-walls, Number and Height of Stories, &c. In the Building of Three sorts of Houses, (*viz.* The Three First Rates) in the City of London, according to the ACT of Parliament.

The Rates, or sorts of Houses.	Several Stories.	Feet in height.	Brick length in thickness.	Brick length in thickness.
The first or least sort of Houses, fronting by Streets and Lanes, are to have	Cellars, 1 Story, 2 Stories, Garrets.	6½ 9 9	The depth of the Cellars, and height of the several Stories	The thickness of the Walls of each House in Fr. and Rear.
The second sort of Houses fronting lesser Streets, and Lanes of note, and the Thames Side are to have	Cellars, 1 Story, 2 Stories, 3 Stories, Garrets.	6½ 10 10 9		
The third sort of Houses fronting high Streets are to have	Cellars, 1 Story, 2 Stories, 3 Stories, 4 Stories, Garrets.	6½ 10½ 10 9 8½		

More concerning Building of Houses you may find under the Head *Architect*; also a very ample Account under the Head *Building*, where are these following Paragraphs and Sections, *viz.* 1. Considerations about Building: 2. *Aphorisms*, which are subdivided into the following seven Sections.

1. *Situation*, in respect of the whole.

2. *Contrivance*, with some Precautions.

3. *Receipt*.

4. *Strength*, with Directions about it.

5. *Beauty*, in the whole and parts.

6. *Form, Figure, or Fashion*, and what Figure is strongest and most convenient.

III. The third Paragraph, contains a Comparison betwixt the modern and ancient Way of Building in *England*.

IV. Contains some general Rules which ought to be observed in Building all Houses, both in the City, and the Country.

V. Contains a Method of Surveying of Buildings, or Houses, and also the Method of taking of Dimensions, and setting them down in a Pocket-book, or the like; and also the Form of a *Bill of Measurement*.

VI. This sixth Paragraph is of the Method of Measuring all Artificer's Works, relating to Building of Houses, &c.

VII. In the seventh Paragraph, there is shewed a Method how you may nearly value all sorts (almost) of Buildings, whether they are great or small.

VIII. You have in the eighth Paragraph a Method of *Censuring* Buildings, or Houses, *viz.* Directions how to pass one's Judgment on a Fabrick (that is already built) whether it be well and firmly compacted, and whether well contrived, as to the whole, and all its parts separately, for Use, or Convenience; and as to its Beauty, whether its Parts be placed in an uniform Order, and whether the Designer, or Master-Builder, observed a due Symmetry, or Proportion of the Parts, in respect of one another, &c.

IX. And lastly, under the Head Building, you have some Directions concerning advi-

sing with Workmen about the Charge of Building any House: And how much a Builder, (or Gentleman that is going to build) is the wiser for such Men's Advice commonly, I mean if he advise with such as are to do the Work: Tho' otherwise perhaps he may be well inform'd by some ingenious Workmen that understand the Speculative Part of Architecture, or Building: But of these knowing sort of Artificers there are but few, because but few Workmen look any further than the Mechanical, Practick, or working Part of *Architecture*; not regarding the Mathematical, or Speculative Part of Building, thinking it to be of little or no Use; this I know to be true, because I have heard some Workmen, who thought themselves no Ignoramusses, tho' at the same time I had the Liberty to think as I pleas'd, which was in truth almost quite contrary; for as they thought themselves Men of Science [or Skill] I thought so too almost, only I thought that the Particle *Ne* was wanting before the word Science; for if that had been prefix'd, then it might have been very well applied to have signified the acquired Intellectual Wits of such Men as affirm, That the Theory, or Speculative Part of Architecture was of no Use, because, say they, It is false: But 'tis the Humour of Men to slight and condemn such Things as they are not Masters of, and do not know which way to attain them, as being beyond their reach.



reach. Like the Fox in the Fable, who despised Grapes, because they grew too high for him to come at.

Thus I have shewed you, That what is wanting under this Head, you may find supplied in the word *Building*.

### *Housing.*

A Term used by some Bricklayers, for when a *Tile*, or *Brick* is warped, or cast crooked or hollow in burning, they then say such a *Brick* or *Tile* is *Housing*; they are apt to be *Housing*, or hollow on the struck side, (or that which was upmost in the Mould) and, *Bricks* on the contrary side.

Also some observe that *Tiles* are always sinootheft, when burnt on the struck-side, by reason the Sand sticks to the under-side, which they strew on the Stock of the Mould, to prevent the Earth's adhering to it.

### *Hypertbyron.*

A Greek word, signifying, the Lintel, or Cap-piece of a Door-case. 'Tis also used to signifie a large Table in manner of a Frieze above Dorick Gates.

### *Hypotrachelium, or Hypotrachelion.*

*What.*] See Capital, N. 2. and 3.

### *Jack.*

SEE Architrave, N. 2.

### *Jambs, or Jaums.*

Door-posts, also the upright Posts at the ends of Window-frames, are so call'd. Also, Bricklayers call the upright sides of Chimneys, from the Hearth to the Mantle-tree, by this Name. *Jambe* is a French word, and signifies a Leg.

### *Ichnography,*

A Description, or Draught of the Plat-form, or Ground-work of a House, or other Building.

### *Impost.*

Is a Term in Architecture, which the Writers of this Science leave very much in the dark; especially as to any account of its use: I understand *Imposts* to be the Capitals of Pilasters that support Arches. Conformable to this Notion is M. Perrault's Definition of it, viz. a *Plinth* or little *Cornice*, that crowns a *Peer*, and supports the first Stone, whence a Vault or Arch commences. It comes from the Italian *Imposto*, surcharged or burthen'd with, or laid upon. Take it either way, the Name expresses the thing.

### *Insulate Columns.*

See it explain'd in *Parastatæ*.  
N Inter.

*Intercolumnation.*

Is the Space between two Columns, which in the *Dorick* Order is regulated according to the Distribution of Ornaments in the Freeze; but in

the other Orders, according to *Vitruvius*, is of five different kinds, *viz.* Picrostyle, Sistrostyle, Eustyle, Diastyle, and Aræostyle. (All which see in their Places.) This the Latins express by their word *Intercolumnium*.

In the { Tuscan  
Dorick  
Ionick  
Corinthian  
Composite } Order.

The Intercolumnation must be { 4  
3  
2  
2  $\frac{1}{4}$   
1  $\frac{1}{2}$  } Diameters of the Body of the Column below.

*Inter-ties, -duces.*

In Architecture, are those smaller pieces of Timber that lie Horizontally betwixt the Summers, or betwixt them and the Sell, or Reson.

Foyners { Brads,  
Rivets.

See { Brads. N.  
Rivets. N.

*Foyners-work.*

See the Particulars in their proper Place of the Alphabet.

*Fobents.*

See Nails. N. 10.

*Foggle piece.*

As Crown-post.

*Foysts.*

1. *What.*] *Foysts*, in Architecture, are those pieces of Timber (fram'd into the Girders and Summers,) on which the Boards of the Floors are laid.

2. *Scantlings.*] *Foysts* at full length (to bear in the Wall,) I say, their full length

being { 12 Foot,  
11 Foot, 6 Inches,  
10 Foot, 6 Inches, } they ought to be in their

Squares { 8 Inches and 3 Inches.  
7 Inches and 3 Inches.  
6 Inches and 3 Inches. }

And

# And Binding, or Trimming-Joyfts being

in length  $\left\{ \begin{array}{l} 7 \text{ Foot,} \\ 9 \text{ Foot,} \\ 11, \text{ or } 12 \text{ Foot,} \end{array} \right\}$  ought to be in their

Squares  $\left\{ \begin{array}{l} 6 \text{ Inches, and } 5 \text{ Inches.} \\ 7 \text{ Inches, and } 5 \text{ Inches.} \\ 8 \text{ Inches, and } 5 \text{ Inches.} \end{array} \right\}$

3. *Distance and Position.* ]  
 (1.) No Joyfts ought to lie at a greater Distance from each other than 10, (or at most than 12) Inches. (2.) All Joyfts on the back of a Chimney ought to be laid with a Trimmer, at 6 Inches distance from the back. (3.) No Joyfts ought to bear at a longer length than 10 Foot. (4.) No Joyfts ought to lie less than 8 Inches into the Brick-wall. (5.) Some Carpenters Furr the Joyfts, (as they call it,) that is; they lay two rows of Joyfts one over another; the undermost of which are fram'd level with the under-side of the Girder, and the uppermost (which lie cross the the lower ones) lie level with the upper side of the Girder.

## Ionick Order.

See Column, and Order.

## Iron.

1. *What* ] Iron is a Metal so universally known, that I neither need, nor shall spend Time in its Description.

2. *Kinds* ] There are several kinds of Iron, as (1.) *English*, which is a coarse sort of Iron,

hard and brittle, fit for Fire-bars, and other such coarse Uses. (2) *Swedish*, which is of all sorts the best we use in *England*. It is a fine tough sort of Iron, will best endure the Hammer, and is softest to file, and therefore most coveted by Workmen to work upon. (3.) *Spanish*, this would be as good as *Swedish* Iron, were it not subject to *Red sear*, (as Workmen phrase it,) that is to crack betwixt hot and cold. Therefore when it falls under your Hands, you must tend it more carefully at the Forge. But tho' it be a good, tough, soft Iron, yet, for many uses Workmen refuse it, because 'tis so ill and unevenly wrought in the Bars, that it costs them a great deal of labour to smoothe it; but it is good for all great Works that require Welding; as the Bodies of Anvils, Sledges, large Bell-clappers, large Pestles for Mortars, and all thick strong Bars, &c. But 'tis particularly chosen by Anchor-smiths, because it abides the Heat better than other Iron, and when 'tis well wrought, is toughest. (4.) There is some Iron that comes from *Holland*, (tho' in no great Quantity,) but is made in *Germany*. This



sort of Iron is call'd *Dort-squares*, (only because it comes to us from thence, and is wrought into Bars of  $\frac{3}{4}$  of an Inch square) 'Tis a bad coarse Iron, and only fit for coarse Uses, as Window-bars, Brewers-bars, Fire-bars, &c. (5.) There is another sort of Iron us'd for making of Wire, which of all sorts is the softest and toughest: But this sort is not peculiar to any Country, but is indifferently made where any Iron is made, tho' of the worst sort; for 'tis the first Iron that runs from the Mine-stone when 'tis melting, and is only preserv'd for the making of Wire.

3. *To know good.*] Generally the softest, and toughest Iron is the best. Therefore when you chuse Iron, chuse such as bows oftenest before it breaks, which is an argument of toughness, and see it breaks sound within, be of a grey Colour, like broken Lead, and free from such glittering specks as you have seen in broken Antimony, and no Flaws or Divisions in it; for these are Arguments that 'tis sound, and was well wrought at the Mill.

4. *Price when wrought.*] Iron being wrought (by the Smith) into Dogs, Iron bars, Staples, large Hooks, Thimbles, and Hinges or Hides, Grates, &c. The usual Price is three Pence Half-penny, or 4 *d.* per Pound. But for small and neat Hooks, Hinges, Bolts, Staples, &c. various, as from 4 *d.* to 8 *d.* per Pound.

5. *To make Blue.*] To beautify Iron with a blue Colour,

take a piece of a Grind-stone, or Whet-stone, and rub hard upon your Work to take off the black Scurff from it; then heat it in the Fire, and as it grows hot, you will see the colour change by degrees, coming first to a light Gold-colour, then to a darker Gold-colour; and lastly, to a Blue-colour. But Workmen sometimes grind Indico and Salad-oil together, and rub that mixture upon it with a Woollen-rag, while it is heating, and let it cool of it self.

6. *Of Twisting*] Square and flat Bars of Iron are sometimes (by Smiths) twisted for Ornament; which is very easily done; for after the Bar is square or flat Forged (and if the Curiosity of the Work require it truly Fil'd,) you must take a *Flame-heat*, or if your Work be small, but a *Blood-red-heat*, and then you may twist it about, as much, or a little as you please, either with the Tongs, Vice, or Hand-vice, &c.

### *Juffers.*

A Term us'd by some Carpenters, for Stuff about 4 or 5 Inches square, and of several Lengths.

### *Kerf.*

THE Sawn-away Slit in a piece of Timber, or Board, the way made by the Saw, is call'd a Kerf.

*Key-stone.*

See *Arch.* Numb. 6.

*King-piece.*

As *Crown post.*

*Knee,*

A piece of Timber cut crooked with an Angle, is call'd a *Knee-piece*, or *Knee-rafter*.

*Keys,*

For Doors, are of various Prices, according to their Size and Workmanship, Master-keys, *per Piece* 2 or 3 s.

*Larmier.*

SEE *Drip.*

*Latches,*

For Doors, are of various Kinds and Prices. Common Iron-latches, *per Piece*, 6 d. if large, 8 d. or 10 d. long varnish'd Latches, about 10 d. *per piece*. Rim'd Latches with a sliding Bolt, 2 s. *per piece*. Spring-latches, *per piece*, 1 s. or 1 s. 6 d.

*Laths.*

1. *What.*] Laths are long, narrow, thin Slips of Wood, us'd in Tyling and Walling; every one knows what they are, without any further Description.

2. *Kinds of.*] There are three kinds of Laths, *viz.* Heart of Oak, Sap-laths, and Deal-laths; the two last Sorts are us'd for Ceiling and Partitioning, and the first for Tyling only. Again, as to their Length, they are each of them distinguish'd into three sorts, *viz.* 5 Foot, 4 Foot, and 3 Foot-laths. All these Sorts of Laths are necessary, (especially in repairing of old Buildings) because all Rafter's are not spaced alike, nor yet the Proportion strictly observed in every one and the same Roof. See *Tyling*, Numb. 8.

3. *Bundle of.*] A bundle of Laths is so many as are bound up together, and is generally called a Hundred of Laths; tho' of the 3 Foot laths there goes 7 Score, (or 140 to the Hundred, or Bundle, and of the 4 Foot-laths, 6 Score but of 5 Foot Laths,) there goes but just 5 Score to the Hundred, or Bundle.

4. *Size of.*] The Statute allows but of two sorts of Laths, one of 5, the other of 4 Foot in Length; of either sort each Lath ought to be in Breadth an Inch and half, and in Thickness half an Inch; but they are commonly less, and are seldom exact. either in their Tale or Measures.

5. *Of Cleaving.*] (1.) Lath-cleavers having cut their Timber into Lengths, they cleave each Piece (with Wedges) into 8, 12, or 16 Pieces, (according to the Bigness of their Timber,) which they call *Bolts*; then they cleave these Bolts (with their Dowl-Ax) by the

N 3 *Felt-grain,*

*Felt-grain*, [which is that Grain which is seen to run round in Rings at the end of a Tree.] into Sizes for the Breadth of their Laths, and this Work they call *Felting*. Then, lastly, (with their Chit) they cleave their Laths, into their Thicknesses, by the *Quarter grain*, which is that Grain which is seen to run in straight Lines towards the Pitch. (2.) Some Men affirm, That a Foot of Timber will make a Bundle, or Hundred of Laths; but this I know to be a Mistake, (unless the Laths are made very slight;) for by several Experiments, which I have caus'd to be made, I find that a Tun, or 40 Foot of Round-oaken-Timber, will not make above 30 Hundred, or Bundles of Laths. Of which Number above one third part. *viz.* 10 Hundred) will be Sap-laths.

6. *Price of.*] (1.) The common Price for cleaving of Laths, is 5 *d.* or 6 *d.* the Bundle. But I know a Carpenter (in *Suffex*) that buys a great deal of Timber, and has it cleft into Laths, and he tells me, that he uses to give but 11 *s.* per Load for the Cleaving of them, reckoning a Load to be 30 Bundles, which is not full 4 *d.*  $\frac{1}{2}$  per Bundle.

(2.) The Price of Laths must needs be various, there being so great Disparity in the Commodity, as to its Goodness, Plenty, or Scarcity, &c. But the Prices are generally between a Shilling and half a Crown the Bundle: And the common Rate for Heart-laths is about 20 *d.* per Bundle, and

Sap-laths are commonly about  $\frac{2}{3}$  of the Price of Heart-laths. The Carpenter mention'd above, (in this Number,) tells me that he uses to sell his Laths for 4 *l.* 10 *s.* the Carriage: He reckons a Carriage 60 Bundles, whereof 40 are Heart and 20 Sap-laths; at which Rate, (reckoning Sap-laths to be  $\frac{2}{3}$  of the Price of Heart, he sold his Heart-laths at 20 *d.*  $\frac{1}{4}$  per Bundle, and his Sap-laths at 13  $\frac{1}{2}$  per Bundle.

7 *Nails allow'd to a Bundle of*] The common Allowance is five Hundred (at six Score to the Hundred, that is 600) Nails to a Bundle of Laths.

8 *How many to a Square.*] Workmen commonly allow a Bundle of Laths to a Square of Tyling, which (if the Distances of the Rafter fit the Lengths of the Laths, without any Waste,) is a sufficient Allowance; for (then) about 90 *Five-foot*, and 112 *Four foot Laths*, will compleat a Square of Tyling, (Counter-laths and all) at 7 Inches Gage; and at 8 Inches Gage, a Square will require fewer.

### Lathing.

The Price of Lathing, Plastering, Rendring, and Washing with Size, is about 10 *d.* 12 *d.* or 14 *d.* per Yard, Materials and Work.

### Lead.

1. *What; and its Use.*] Lead is a Material us'd in Buildings, well known, and needs no Description. Its chief Uses



Uses are for covering for Gutters, for Pipes, and for Glass. Covering with Lead is the most magnificent, and is generally most us'd for the covering of Churches, Princes Palaces, Castles, and great Men's Houses. It's generally laid almost flat to walk upon, allowing the Water a little Fall to the Battlements, thence privately to descend in Pipes. But in ordinary Tyled Buildings, 'tis chiefly us'd for Gutters to convey the Water from the House into some convenient Place.

2. *Sorts of*] There are three sorts of Lead, white, black, and Ash colour; the White is more perfect and precious than the Black, and the Ash colour between both.

3. *Of Casting Sheet.*] I shall here exhibit some of my Observations on the Method of Casting Lead into Sheets; as I have often seen it done, and have (for Curiosity) cast some Sheets myself. For this Purpose there is a Mould provided, which is made something longer than the intended Length of the Sheets, that the End where the Metal runs off from the Mould may be cut off; because 'tis commonly thin, and uneven, or ragged at the End.

This Mould, (which is just as broad as the Sheet is to be, must stand very even, or level in Breadth, and something falling from the End where the Metal is pour'd in, *viz* About an Inch, or an Inch and half in 16 or 17 Foot.

This Mould (commonly) consists of several Tressels,

upon which Boards are laid, and nail'd down fast, and upon these, at a due Distance, (according to the intended breadth of the Sheets,) the Sharps are fixed. These are two Pieces of well season'd Timber, of about 4 Inches Square, and 16, 17, or 18 Foot long, according to the Size of the Sheets. But this Method of fixing down the Sharps, Workmen have found to be inconvenient; and therefore some do only fix one of the Sharps firmly, nailing the other but slightly, and then they fix several Pieces firmly to the Boards, without the slightly fixed Sharps betwixt which and the Sharp, they drive Wedges, to make the Sharps come nearer together, as they see occasion: For they find by Experience, that the moisten'd Sand, (when it has lain a while on the Boards,) makes the Board swell so much, that in spite of the Nails the Sharps will be too far aunder.

At the upper End of the Mould stands the *Pan*, which is a Concave Triangular Prism, compos'd of two Planks nail'd together at Right Angles to each other, and two Triangular Pieces fitted in betwixt them at the Ends. The length of this Pan is the whole breadth of the Mould wherein they cast their Sheets, and the breadth of the Planks whereof 'tis compos'd, may be 12 or 14 Inches, or more, according to the Quantity of Lead they have occasion to put into it, to make a Sheet of, and the thickness of the Planks an

Inch and a half. This Pan stands with its bottom, (which is a sharp Edge) on a Form at the end of the Mould, leaning with one side against it, and on the opposite side is a handle to lift it up by, to pour out the melted Lead; and on that side of the Pan next the Mould are two Hooks of Iron, to take hold of the Mould, and prevent the Pan's slipping when they pour the melted Lead out of it into the Mold.

This Pan is lined on the inside with moisten'd Sand, to prevent his being fired with the hot Metal. The Mould is also fill'd up (from the upper End towards the lower end, about  $\frac{2}{3}$  parts of the way) with Sand sifted and moisten'd, and then a Man gets upon it, and treads it all over with his Shoes on, to make it settle close to the Mould. This being done, they begin to strike it level with the *Strike*, which is a piece of Board about 5 Inches broad, in the middle of which, and towards the upper Edge is a wooden Pin (about 5 or 6 Inches long, and 1, or  $1\frac{1}{4}$  Inch Diameter,) to hold it by when they use it. The length of this *Strike* is something more than the breadth of the Mould on the inside, and at each end is cut a Notch (on the under-edge,) about two Inches deep; so that when the *Strike* is us'd, he rides upon the Sharps with those Notches, and the lower edge of the *Strike* rides about two Inches below the upper side of the Sharps.

Then, in leveling the Sand with this *Strike*, they begin towards the lower end of that part of the Mould that was fill'd, and taking the Handle of the *Strike* in their Right-hand, and laying their Left-hand upon one end of it, they draw the Sand back into that part of the Mould that was empty. Then they begin again a little nearer to the upper end, and draw the Sand back, (as before) but not so far as the empty part of the Mould; for it is thus level'd at 5 or 6 Places in the length of the Mould; (if he be 18 Foot long, as that was I made my Observation from.) so that when it is thus level'd the whole length of the Mould, there are as many places that seem to be unlevel'd, as there are level'd, by reason of the Sand which is a little drawn back. Then the next Operation is to draw all the loose and hover Sand, (rais'd in the last Operation of leveling it) into the empty part of the Mould; which is done by beginning at the upper end of the Mould, and still, as the Sand is drawn back, the level'd part must be examin'd, to see if there be no Cavities in it; for if there be, a little Sand must be put into them, and that must be settled close and fast in the Cavities, by lifting up one end of the *Strike*, (letting the other rest upon the other Sharp) and rapping upon the loose Sand, which was put in those Cavities, and so it will be settled close and fast.

This being perform'd all over the upper  $\frac{2}{3}$  parts of the Mould, and all the loose Sand drawn back into the lower  $\frac{1}{3}$  part of the Mould, *that* is also trod on, and settl'd all over, and level'd in all Respects as the other  $\frac{2}{3}$  were; and its loose Sand is drawn off the Mould, down into a Place 2 or 3 Inches below the lower end of the Mould, where the Sand is made into two Concavities to receive the Overplus of the Lead.

The Sand being thus level'd, it is next to be smoothed all over with the *smoothing Plane* (as they call it) which is a thick Plate of polish'd Brass, about 9 Inches square, a little turn'd up, on all the 4 Edges; so that the under-side looks something like the Diamond-cut Looking-glasses, on the upper-side, (which is a little Concave, like a Latten-pan,) is a brass Handle solder'd on, upon which is a wooden one also, like a Case-smoothing-iron. With this Instrument the Sand is smoothed all over; and where there are any small Cavities, there must be a little Sand put in 'em, (with the two Fore-fingers and Thumb,) and then smoothed down.

The Sand being thus smoothed, the Strike must be made ready, by tacking (that is, slightly nailing) on the Notches, two pieces of an old Felt-hat (or else by slipping a Case of Leather at each end,) thereby to raise the under-side of the Strike about  $\frac{1}{8}$  of an Inch above the Sand, or something more, according as the Sheet

are to be in Thickness, which will make a middle siz'd Sheet of about 9 or 10 Pound *per* Foot; as I have observ'd in the casting of Lead for a Plat-form. (But for Hip, and Window-foils, and such Places where it does not lie flat, the Lead need not be above  $\frac{1}{10}$  of an Inch thick; but sometimes Plat-form-lead is near  $\frac{1}{2}$  of an Inch thick)

Then they Tallow the under-edge of the Strike, and lay him cross the Mould, close by the Pan, to prevent Drops of Lead from spattering into the Mould, before it be ready to pour. Then the Lead being melted, (and the Pan made ready, by being lined with moisten'd Sand, as was said above,) it is laved into the Pan, and when he is full, (or a sufficient Quantity for the present Purpose) then with the end of a piece of Board (two or three Inches broad,) draw off the floating part, or Scum of the Metal round about to the edge of the Pan, and there let it settle upon the Sand, which will thereby prevent the Sand from falling out of the Pan into the Mould, when the Metal is pour'd out.

The Metal being thus prepar'd, and cool enough, (which it will be when it begins to stand with a Shell, or Wall round about on the Sand,) then two Men must take the Pan by the Handle, and pour it into the Mould, and a third Man stands ready with the Strike, (facing of them, and his Right-side to the Mould,) and as soon as they have done pouring



pouring in the Metal, he immediately puts the Strike on the Mould, and runs back the whole length of the Mould, and so draws off the Overplus of the Lead, into the Cavities made to receive it; and then immediately, (with a Knife) the ragged End is cut off before it is cold.

When the Sheet is a little cool'd, 'tis begun to be rowl'd up, from the upper end downwards, ('tis handled with pieces of old Felt-hats,) and as they rowl it up, they rub off the Sand from it.

When the Sheet is taken off from the Mould, the Sand is immediately rak'd over with the Rake to let it cool, and then if it be too dry, 'tis sprinkled with a little Water; but Care must be taken that none of the Mould be too wet; for if it be, the melted Lead will fly like Shot when it comes upon it. After the Sand is raked, 'tis all turn'd up-side-down with a Spade, and when it has lain a while, 'tis again thrown into  $\frac{2}{3}$  parts of the Mould, and settled down by treading, as at first, &c. To make it ready for the next Casting, which is commonly in an Hour and a half, or two Hours, if the Furnace heat well.

Thus much I have observed of the Method of casting Lead into Sheets. I have insisted the longer upon it, because I know of none that has written of this so useful a Subject.

4 *Weight of a Foot of Sheet* ] Every square Foot of Sheet-

lead, (if it be design'd for Gutter, which is commonly run thinner than for Plat-forms,) is reckon'd to weigh 6 or 7 Pound if old, 8 or 9 Pound if new. And every square Foot of Sheet-lead for Plat-forms, is reckon'd to weigh 8, 9, or 10 Pound, if old, and 11 or 12 Pound, if new, and very good.

5. *How much one hundred Weight will cover.* ] One hundred Weight of Sheet-lead (at 12  $\frac{1}{2}$  per Foot, (will cover a Square-yard, or 9 Square-foot. And is a lighter covering than Tiles, tho' dearer.

6 *Sheet for Gutters* ] Sheet-lead design'd for Gutters, is commonly run thinner than for Plat-forms. And some Plumbers in *London* tell me, That 'tis the best way in laying long Gutters, to make a Drip, (Fall, or Step) about the middle, (of 1, 2, or 3 Inches deep;) for by this Means, say they, the Lead (being cut into two pieces which are shorter,) is not so subject to crack, (by being dilated and contracted with Heat and Cold) as otherwise it is.

7 *Sheet, of laying on in Plat-forms* ] I have observed the Method of Plumbers in laying down the Lead in Plat-forms, to be this: Having roll'd open two Sheets, they beat them flat with their Dresser, [which is an Instrument of Wood, of 16, 18, or 20 Inches long, (according as they are of stoutness) and about 3 or 4 Inches broad at the bottom, and in height something more, in the

the Form almost, of a Parallelopipedon, only the upper-side is rounded off, and at one end the under-side is cut away, so as to leave a handle running out straight with the top.] Then (with a Line and Chalk, or with a straight Ruler, and a pair of Compasses,) they strike a Line about  $2\frac{1}{2}$  Inches distant from one edge of one of the Sheets; this is for the *Standard*. In the same manner they strike a Line about  $3\frac{1}{2}$  Inches distant from the edge next to it of the other Sheet; this is for the *Orlop*. [The *Standard* is about  $2\frac{1}{2}$  Inches of a Sheet of Lead which is set up at Right-Angles to the Sheet, all along one edge of it. The *Orlop* is about  $3\frac{1}{2}$  Inches of the edge, (next to the *Stander*) of the other Sheet. rais'd up in the same manner as the *Stander*.] Then with their *Pincers*, (which are something different from common *Pincers*; for these have a small Cylinder of Iron, (of about  $\frac{1}{2}$  an Inch Diameter, and 3 or 4 Inches long) fixed to one of the Chaps in such a Position, that when the *Pincers* are shut, they seem to hold it betwixt their Chaps;) they raise up the *Stander*, and *Orlop*, by putting the sharp Chap under the Sheet, and the Cylindrical one on the top near the Line, and so they bend up the edge of the Sheet, both for the *Stander* and *Orlop*. Then they proceed to set it in better Order with the *Dresser*, with which they make the *Stander* and *Orlop*, as upright

and straight as they can, by placing one edge of the *Dresser* upon the Line which they struck, and striking hard Blows on the top of him with a Smith's Hand hammer.

Having thus made the *Stander* and *Orlop* as straight as they can, and set them up at Right Angles to the Sheet; they bring them together, and proceed to make a Seam of them, by first turning the *Orlop*, (which is an Inch broader than the *Stander*) over the *Stander*, by the Help of the *Dresser*, and *Seaming mallet*, [which is an Instrument of Holly, or some other hard Wood, wrought away from the middle to one end, almost to a sharp edge, and so it is likewise at the other end, only those Edges stand at right Angles to each other, like a Cross-mattock. And into the middle of it is put a Handle like a Mallet] And then they continue to beat the *Orlop*, and constantly work upon him with the *Dresser*, till they have reduced him and the *Stander* into as little Room as they can, by wrapping them one in another, till at last it seems to be a kind of Semicircle, and this is what they call a Seam.

Some Plumbers tell me, That they sometimes lay Platforms of Lead, without Seams; but then the Joyns are wrought in hollow, about three Inches broad, and near as deep, in the Foam of a Semi-concave-cylinder, and when they lay the Sheets down, the edge of the

first

first Sheet lies so far on the Joyst, that it comes over beyond the Concavity, and so much of the Sheet as lies over the Cavity, is set down into it with the Seaming-mallet, and the next Sheet is laid over that, and set down into the Chanal also; and so the Water that comes into those Chanals, runs down into the Gutter.

8 *Mill'd.*] One Mr. Roberts, (then Master of the Company of Plumbers in London,) tells me, That *Mill'd-lead* is of but little Use; not only because 'tis so very thin; but also because by the way of milling it, 'tis stretched to that Degree, that when it comes to lie in the hot Sun it shrinks, and cracks, and (consequently) will not keep out the Water. For 'tis, (says he,) like Cloath stretched on the Clothiers Tilters, which when taken off, naturally inclines to return to its former State. He farther added, That there was sufficient Proof for what he said; and if any one desir'd to be satisfi'd about it, he might repair to *Greenwich hospital* which is covered with *Mill'd-lead*, and has not been done above 4 or 5 Years, and yet it rains in, almost all over the Hospital; upon which Account the Master and Wardens of the Company of Plumbers were sent for to the Parliament, who order'd them to go and view this *Mill'd-lead-work* at *Greenwich-hospital*, which they did; and when they returned to the Parliament, they all unanimously declar'd, That

*Mill'd-lead* was not fit to be us'd: Whereupon the Parliament had Thoughts of putting down the Milling of Lead: But whether they have actually done it, I have not yet heard.

9. *Pipes of.*] I understand by discoursing with some Plumbers in London, that they give distinct Names to their Leaden pipes, according to their weight at a Yard long, e. g. they have 6  $\text{lb.}$  8  $\text{lb.}$  10  $\text{lb.}$  12  $\text{lb.}$  14  $\text{lb.}$  20  $\text{lb.}$  and 28  $\text{lb.}$  Pipes, and if I misremember not, one size larger; so that a Pipe of 6  $\text{lb.}$  to the Yard, they call a 6 lb. Pipe, and so of the rest. I cannot at present tell the particular Sizes of all these sorts of Pipes; but if I misremember not, the 10 lb. Pipe was about  $1\frac{1}{4}$  Inch Diameter, from out-side to out-side.

10. *For Glass.*] Some Glaziers tell me, That they usually allow 50 lb. of Turn'd-lead to 100 Foot of Quarry-glass. They call it *Turn'd-lead*, when the *Came* has pass'd thro' the Vice, and is thereby made with a Groove on each side, to go on upon the Glass. See *Came*. Their Turn'd-lead for Quarries is commonly about  $\frac{1}{10}$ . (which is almost  $\frac{1}{8}$ ) of an Inch broad; and for large Square-glass, their Turn'd-lead is  $\frac{8}{16}$ , or  $\frac{1}{2}$  an Inch broad. So that I find (by Discourse with Glaziers,) they have it of different Sizes, as  $\frac{4}{16}$ ,  $\frac{5}{16}$ ,  $\frac{6}{16}$ ,  $\frac{7}{16}$ , and  $\frac{8}{16}$  of an Inch broad.

I have also observed, That some Glaziers in London have three Sizes of Turn'd-lead for Glass-windows, viz. Of  $\frac{7}{16}$ ,  $\frac{1}{2}$ , and  $\frac{3}{4}$ .



$\frac{5}{8}$ , and  $\frac{4}{8}$  of an Inch broad : The largest size, they tell me is for large Squares, that of  $\frac{5}{8}$  for Quarries, and the  $\frac{4}{8}$  for Crocket-work, (or Fret-work, as some Glaziers call it,) it being more pliable for that Use than broader Lead.

Some Glazier tell me, They can turn Lead of different sizes in the same Vice, by changing their Cheeks for each size, with another pair of Spindles, whose Nuts almost meet or touch, they turn Lead for Tyers, which when it comes out of the Vice, is almost cut afunder in two Thicknesses, which they can easily rend afunder. These Tyers are very tough, but they are commonly made too slight, and therefore some use to cast Tyers, which are stouter, but not so tough, being more apt to break in winding.

11. *Nails for* ] See Nails. N. 11.

12. *Of Soddering* ] An ingenious Plumber, (who esteem'd me as his peculiar Friend) told me the Method of *Paleing*, (as they call it) or soddering on of Imboss Figures on Leaden Work ; as, suppose a Face, or Head in B af-relief, were to be pail'd on a Pump-cistern for an Ornament to it. To do this, (said he) the Plate where it is to be pal'd on must be scrap'd very clean, and so must also the back-side of the Figure, that it may sit close with a good Joynt. Then, (said he) place that part of the Cistern (where the Figure is to be fix'd) Horizontal, and strew some pulveriz'd Rozin

on the place where you made your Joynt. Then into the Cistern, (just under the place where your Figure is to stand,) set a Chaffing-dish of Coals, (till you see the Rozin is changed redish, and begins to raise in Pimbles, or Bladders) then take a piece of soft Sodder, (made of a longish Figure) and rub the end of it round about your Figure, and at the same time keeping your Figure steady in its place, so that it may work into the Joynt. And when this is done, your Figure will be well pal'd on, and will be as firm, as if it had been cast on there.

But if your Cistern, (or the like) be so thin, as that you have reason to fear that it will be too hot, and be apt to run, or bend, and yield, before your Figure, (which is on the outside of it) will be hot enough ; you may then lay your Figure on the hot Coals, till it and the place to receive it are both in a good temper for paleing, and then set the Figure on its place, and proceed with your Sodder, as before.

By this Method I saw him, sodder on Bottoms to Leaden-stands, or Ink-holders.

I also saw and observ'd him, in soddering the Leads of a Church, thus to manage it, *viz* When he sodder'd the Sheets of Lead that are fix'd into the Wall on one edge, and with the other edge lap over the ends of those which are seam'd in the Platform, at every other Sheet. in the middle betwixt the seams, he soddered the Lapping-sheet down to the other,

other, thus — : with one corner of the Scraper, [which is an Instrument made of a Plate of Steel, in the Form of an Equilateral Triangle, in the middle of which is fix'd an Iron Strig, on the end of which is fixed a Wooden-knob, or Handle. The Plate is flat on the side next the Handle, but on the other side the edges are ground off with a Bezel like a Chizel, only very obtuse.] He first marked out, (partly on the edge of the Lapping sheet, and partly on the other, an Oblong Rectangular Figure, of about five or six Inches long, and three or four broad. Then he scraped the Metal bright, having first, (because it was new Lead,) green'd it, (as they phrase it) all round about, to prevent the Sodder's taking any where but where they scrape it. (This Greening is only rubbing it with some green Vegetable, it matters not what, he did it with Poor-man's pepper, that being at hand : He told me, That in the Winter they us'd Cabbage leaves, or any green thing they could get.) It being thus scrap'd, he rub'd it with Tallow, then having an Iron red hot, (which are much like the Irons us'd by Glaziers) he took him with a piece of Felt in his Right-hand, and a piece of Sodder in his Left, and holding it against the Iron, 'till it drop'd on the cleansed place, and when there was enough of it melted, he took a Linen-clout in his Left-hand, and therewith kept the Sodder continually shov'd up on the cleansed place, and at

the same time work'd it about with the Iron in his Right-hand, thus he did, 'till he thought it was pretty well incorporated with the Lead, and then he made it up into a kind of Swelling form in breadth, and then cross the breadth of it, he made it into a kind of Seams with the Point of his Iron. This being done, he took their Knife and a Dresser to knock him with, and so cut it straight on the sides and ends, and what he thus cut off, by reason of the Greening easily peel'd off.

After the same manner he sodder'd Holes or Leaks in old Lead, only then he made the Sodder flat, and not swelling, (but he made it also in little Seams,) neither did he green it before he scrap'd it.

13 Price.] (1.) *The Price of Lead in Pigs* (says Mr. Leybourn) is uncertain, as from 10 to 20 s. the hundred weight. I know a Plumber (at *Lewis in Sussex*) who tells me he gives 12 s. 6 d. per hundred for Lead in Pigs at *London*: Some Glaziers tell me they give but 12 s. per hundred, if they buy but half a hundred. Mr. Wing tells us, That a Fodder of Lead is 22  $\frac{1}{2}$  hundred weight, (I know not how he reckons ; for I am sure, most Authors reckon a Fodder of Lead but 19  $\frac{1}{2}$  hundred,) and is worth from 9 l. to 12 l. which will cast 315 Foot of Sheet, at 8 Pound per Foot.

(2) *The Price of Sheet-lead.*] Mr. Leybourn says, That in exchange of old Lead for Sheets new run, there is commonly allow'd



allow'd 3 s. in every hundred weight, for Waste and Workmanship. I saw Sheet-lead (in 1701) sold at *Lewis* for 16 s. per hundred weight, (they sometimes sell it for 17 s.) The Tinker who bought it to skirt a Furnace with, said it was good thick Lead. I computed it to weigh about  $11 \frac{1}{4}$  Pound per Foot; for there was four pieces of it, each about three Foot long, and fifteen and an half Inches broad, all which weigh'd 174 Pound.

(3.) *The Price of Casting Sheet-lead.*] The Tinker above mention'd tells me, That Plumbers commonly reckon 4 s. per hundred, for casting old Lead into Sheets; but I apprehend that the Plumber (for this Price) makes good so many hundred weight of Sheet-lead, as he receiv'd of old Lead. For Mr. *Leybourn* tell us, That Sheet-lead is cast out of old Lead, for 3 s. per hundred, allowing for Waste and Workmanship: And Mr. *Wing* says, That there is about 2 s. 6 d. (in every hundred) loss, in casting old Lead into Sheets: He also says, That casting old Lead into Sheets, is worth 1 s. 6 d. per hundred. Yet I know a Plumber that had 3 s. per hundred for casting of Sheet-lead; but then it was weigh'd after it was cast, and he made very great Wages.

(4.) *The Price of laying on of Sheet-lead in Roofing &c.*] This (says Mr. *Wing*) is worth 15 or 16 s. per hundred weight, Lead and Workmanship. And Mr. *Leybourn* tells us, That covering with Lead is usually valu'd

at 13, 14, or 15 s. per Yard Square, (according to the goodness of the Lead,) or between 7 and 8 Pound the Square of 10 Foot, besides Sodder.

(5.) *The Price of Sodder*, (says Mr. *Leybourn*) is 9 d. or 10 d. per Pound, as it is allay'd with Lead, and Scal'd: For Tin is 10, 11, or 12 d. per Pound neat.

(6.) *The Price of Leaden-pipes* is various, according to their different bigness. An ingenious Country-plumber of my Acquaintance tells me. That for Pipes of half an Inch Diameter in the Bore, they have 1 s. 4 d. per Yard, for  $\frac{3}{4}$  Inch Pipe, 1 s. 10 d. for Inch Pipe, and  $1 \frac{1}{4}$  Inch Pipe, 2 s. or 2 s. 6 d. (for, says he, they are cast both in a Mould, only the Inch Pipe has a less Bore; and I think he said they were both of a Price; tho' I think, for this Reason the Inch Pipe ought to be the dearest, since it contains most Lead, and the Work is the same in each.) For Pipes of  $1 \frac{1}{2}$  Inch Bore they have 3 s. 6 d. per Yard, and for 3 Inch Pipe, 5 s. or 5 s. 6 d. The London Plumbers, (I find) rate their Pipes according to the weight of a Yard in length. Their 10 Pound Pipes are 2 s. 2 d. per Yard.

(7.) *The Price of Turn'd-lead for Glass-windows*, is various according to its breadth. I know some Glaziers in London sell Turn'd-lead of  $\frac{1}{2}$  Inch broad, for 18 s. per hundred, that of  $\frac{3}{4}$  Inch broad for 17 s. per hundred.

1. *White, for Painting*] White-lead is a Colour (well known



known ) much us'd in Painting of Gates, &c In London, 'tis commonly sold for  $2\frac{1}{2}$  d. or 3 d per Pound un-ground. I have also known it bought (in London) for 5 d. per Pound ready ground with Oil.

### Ledgers.

See Putlogs.

### Lime.

1. *What.*] A Material us'd in Building, ( and well known, ) made of burnt Stones, commonly of Chalk.

2. *Whereof, and how made.*] Mr. Leybourn tells us, out of Palladio, That Stones whereof Lime is made, are either dug out of Hills, or taken out of Rivers: That Lime is the best which is made of the hardest, sound, and white Stones, and being burnt, remains a third part lighter than the Stones whereof it is made. All dug Stones are better to make Lime of than gather'd Stones, and from a shady and moist Pit, than from a dry. All Stones are sooner or later burnt, according to the Fire which is given them; but ordinarily they are burnt in sixty Hours.

The ingenious Sir Henry Wotton, tells us, That to make Lime (without any Choice) of refuse Stuff as we commonly do, is an *English* Error, of no small Moment in our Buildings. Whereas the *Italians* at this day, and much more the *Ancients* did burn their *firmest* Stone, and even Fragments of Marble where it was plenty,

which in time became almost Marble again for its hardness, as appears in their standing Theaters.

There are two kinds of Lime commonly made in *England*, one made of Stone, which is the strongest, and the other of Chalk, both being burnt in a Kiln.

The Lime that is made of soft Stone, or Chalk, is useful for Plaistering of Ceilings and Walls within Doors, or on the insides of Houses, and that made of hard Stone is fit for Structures, or Buildings, and Plaistering without Doors, or on the outside of Buildings that lie in the Weather: And that which is made of greasie clammy Stone, is stronger than that made of a poor lean Stone, and that which is made of spongy Stone, is lighter than that made of firm and close Stone; that is again more commodious for Plaistering, this for Building.

Also very good Lime may be made of Mill-stone, not coarse and sandy, but fine and greasie. Likewise of all kind of Flints, ( but they are hard to burn, except in a Reverberatory Kiln, ) except those that are rolled in Water because a great part of its Increase goes away by a kind of Glass. Also the Shells of Fish, as of Cockles, Oysters, &c. are good to burn for Lime.

About us in *Sussex*, Lime is made of hard Chalk, dig'd out of the Hills, and is burnt in Kilns, like Brick-kilns; but with this difference, That they have no Arches in them, but

but only a kind of Bench, or Bank on each side, upon which they lay the largest Stones, and so truss them over, and make an Arch, after the manner of Clamps for Bricks (See *Clamp*) And when they have thus made an Arch with the largest Stones, they fill up the Kiln with the smaller ones

A Mason of my Acquaintance tells me, That the *Kentish* Lime is far better than that commonly made in *Sussex*: For, (says he) a Gallon of Water will make as much more *Kentish* Lime run, as it will of *Sussex* Lime: So that it should seem (by the Consequence of Discourse,) that *that* is the best Lime which will run with the least Moisture.

The ingenious Gentleman, *Walter Burrell, Esq.* of *Cuckfield* in *Sussex*, was the first that introduced the use of Fern for burning of Lime, which serves that purpose as well as Wood, (the Flame thereof being very vehement,) and is far cheaper.

3. *Hundred of- how much.*] In (and about) *London* Lime is commonly sold by the Hundred, which is 25 Bushels, or one hundred Pecks, whence it had its Name.

4. *Load of- how much.*] In the Country, Lime is commonly sold by the Load, which is 32 Bushels. A Load of Lime, (say some) will make Mortar enough for 250 solid Foot of Stone-work. And 8 Bushels of Lime, (heaped measure) is the common allowance to every Thousand of Bricks.

5. *Price of-*] The Price of Lime is various in different

Places, as from 8 to 12 *s* the Hundred, says Mr. *Leybourn*. I know that before these late Wars, (which have made Fuel dear and scarce) Lime (in some parts of *Sussex*) was sold for 20, or 21 *s* per Load, 32 Bushels to the Load; but now in some parts of *Sussex* 'tis sold for 24, or 25 *s* per Load, in others for 32 *s*. Yet in some parts of *Sussex*, 'tis still (to my knowledge) sold for 12 *s* per Load at the Kiln, and for about 15 *s*. 6 *d*. laid in 3 or 4 Miles.

### *Lintels.*

1. *What*] *Lintels* (in Stone and Brick Buildings) are the pieces of Timber that lie Horizontally over the tops of Doors and Windows.

2. *Price.*] The Carpenter commonly puts in these by the Foot running measure, at 6 *d*. per Foot, if Oak; 4 *d*. if Fir, Timber and Workmanship. Some Carpenters in the Country, (that do not find Timber) tell me, they have 1 *s*. per piece for sawing the Timber, and putting them in.

### *List, and Listella.*

Is a little square Moulding, serving to crown or accompany a larger, or on occasion to separate the *Fluteings* of a Column. It is sometimes call'd a *Fillet*, and sometimes a *Square*: It comes from the *Italian* word *Lista*, any kind of *List* or *Sel-vage*.

### *Lobby.*

As Anti-chamber.

### Locks

For Doors are of various kinds; as for Outer-doors, called Stock-locks; for Chamber-doors, call'd Spring-locks, &c. Also the several Inventions in Locks, (I mean in the making and contriving their Wards and Guards,) are almost innumerable. And as their kinds are various, so are their Prices; I shall at present mention only some of the chief. As Stock-locks plain, from 10 *d.* to 14 *d.* per piece, or more, S-bitted Stock locks with a long Pipe, 1 *s.* 6 *d.* S-bitted and warded Stock-locks very strong, 7 *s.* Brass-locks from 5 *s.* 6 *d.* to 9 *s.* Brass-knobbed-locks in Iron-cases, 3 *s.* double Spring'd-locks 1 *s.* Closet-door-locks 1 *s.* 4 *d.* Pad, (or secret) Locks with Slits instead of Pipes, 1 *s.* Plate-stock-locks, 3 *s.* 8 *d.* some ditto for half that Price. Plate stock-locks in Shute, 4 *s.* 6 *d.* Brass knob'd-locks in Shute, 6 *s.* 6 *d.* Iron-rimb'd-locks very large, 10 *s.* 6 *d.* The Prices of Locks are various, according to their different kinds, sizes, and variety of Workmanship, so that 'twere endless to mention them all; therefore I shall say no more of 'em at present, only, that there are some Locks made of Iron and Brass of 50, nay 100 *l.* per Lock, as Mr. Chamberlain tells us in his *Present State of England*.

### Lome,

A sort of reddish Earth, (well known) us'd in Buildings,

(when temper'd with Mud Gelly, Straw and Water,) for Plastering of Walls in ordinary Houses.

I know one Place in *Sussex*, (where being well temper'd with new Horse-dung,) it is us'd instead of Mortar to lay Tiles with, and they tell me it does very well.

*Lome*, (as 'tis dug out of the Earth) is commonly sold in some parts of *Sussex*, for 1 *s.* per Court-load, containing about 12 Bushels.

### Lutherns.

As *Dormers*. Also, see *Windows*. N. — Their Price of making and setting up, (and sawing the Timber) is various, (according to their bigness) from 9 to 20 *s.* per Window.

### Marble.

1. **WHAT.]** A hard Stone, beautiful when polish'd, but hard to cut; much us'd in adorning of Palaces, and great Men's Houses, &c.

2. *Kinds of.]* The kinds of Marble are almost innumerable, some *white*, some *black*, some *grey*, some *green*, some variegated with Veins, and Spots, &c. It were endless to give the particular Names and Descriptions of all the kinds of Marble.

3. *Use of.]* The principal use of Marble in Architecture, is for



for Chimney-pieces, Chimney-foot-paces, Window-stools, Pavements, &c.

The Ancients, (as *Pliny* and other Authors tell us) us'd to face their Houses all over with thin Plates of Marble.

4. Of *Polishing*] An old experienced Mason tells me, that he has observ'd Stone-cutters polish Marbles for Hearths in this manner, *viz.* By laying three or four of 'em in a row, as even as they could, and then with another of these Stones fix'd to a broad Beetle, with a Handle put in at Oblique Angles, (and with Sand and Water) by moving this upper Stone too and fro on the lower ones, they wrought off the Strokes of the Ax, and afterwards with *Emmery* and *Putty* they polish them.

I have (also) my self, (at *Lewis* in *Suffex*) seen and observ'd them polishing of Marble for tops of Tomb-stones, which (as I find in my *Adversaria*) they did in this manner. They block'd up their Stones to be polished, so as they lay Horizontal about  $2\frac{1}{2}$  Foot high above the Ground; (I say they observ'd to lay them very level) and then they wrought the upper Surface smooth and even, with a Tool for that purpose: This Tool was a piece of whole Deal about 18. or 20 Inches long, and 12 Inches broad, and cross the Grain of the Wood, on the upper side were nail'd two Ledges, one at each end, and on these Ledges was nail'd a Staff or Handle about eight or nine Foot long, *viz.* (long

enough to reach the length of the Tomb-stone) also at each end on the under-side was nail'd a Ledge, and between these Ledges there was wedged in (with Wooden-wedges) a Hearth-stone of Marble that was also rough and unpolish'd. Then flinging Water and Sand upon the Tomb-stone, they wrought upon it, (by drawing the Hearth-stone too and fro) 'till the Hearth-stone became pretty smooth, and then they put in another rough Hearth-stone, and so they continue to do, till they have wrought the Tomb-stone pretty even and smooth. But you are to note, That while the Tomb-stone and Hearth-stones are rough, they lay a considerable weight, (as a Stone, or the like) upon the upper side of the Tool, to keep it down hard on the Tomb-stone, but when the Tomb-stone is pretty smooth, they make him yet smoother, by putting into the Tool, (one after another) several of those hearth-stones already begun to be polish'd, and this they continue to do, till they have brought both them and the Tomb-stone to a more polite Surface; upon these they use no weight on the back of the Tool, but they use Water and Sand, as before. And if they have no Marble-hearth-stone to polish, then the Workmen tell me, they put a *Purbeck-stone* into the Tool.

5. *Price of -*] *Chimney pieces* of *Egyptian*, or black fleak'd Marble, or of *Rance*, or *Liver-colour'd Marble* is worth (of

an ordinary size) 12 or 14 Pound a piece.

*Window-stools*, of white or black Fleak'd-marble, are worth about 2 s. 6 d. per Foot.

*Pavement* of black, or white Marble, is worth about 2 s. per Foot. Thus Mr *Wing*.

A Stone-cutter in London tells me, he sells *English* white Marble vein'd with red, &c

in { Squares } for about { 2 s. 6 d } per Foot.  
 { Slabs } { 5 s. }

Black-marble he sells somewhat cheaper.

### Marble-colour.

The Price of Painting ordinary Marble-colour, on new Stuff, is about 1 s. per Yard. And an old Colour, about 9 d. per Yard, Colour and Work.

### Masons.

1. *Work*] The several kinds of Work done by Masons, (in relation to Building) with their Prices, and Methods of Measuring them, &c are too many to be comprehended under this so general word of *Mason's work*, (especially as the word *Mason* is accepted in the Country) and therefore I shall refer them to their Particulars, (as *Walling*, *setting of Fronts*, *Healing*, &c.) where they will much more readily be found.

2. *Bill to make.*] See *Brick-layer's Bill*.

### Measuring.

Of *Artificers Work*.] See the particular kinds of Work, in their proper Places of the Alphabet; where they will much

for 2 s. 6 d. per Foot in Squares for *Pavements*, and Slabs of the same sort of Marble, (long enough for a Chimney foot-space) for 5 s. per Foot.

*Egyptian* Marble, vein'd with variety of Greens, in Slabs, he sells for 8 s. per Foot.

*Italian* white Marble vein'd for Chimney-foot-paces, he sells.

{ 2 s. 6 d } per Foot.  
 { 5 s. }

more readily be found, than under this general word *Measuring*.

### Membretto.

A Pilaster that bears up an Arch.

### Mezanine.

The same as *Entresole*; which see.

### Metops.

Is the square Interval between the Triglyphs of the Dorick Frize, which among the Ancients used to be adorn'd with the Heads of Beasts Basons, Vases, and other Instruments used in sacrificing

The Beauty of these *Metopes*, consists in their Regularity; that is, in their being perfect Squares: And yet when they are really Square, they appear to be less in height than in breadth; which is owing to the Projecture of the little Bandellet wherein they terminate underneath, that hides a small part

part of their Height; for this Reason *M le Clerc* is for making the *Metopes* a minute or two more in Height, than in breadth; being of Opinion, They ought rather to appear Square, without being so, than really be square, without appearing so.

### *Minute.*

A Minute is usually the 60th part of a Module; as a Module is usually the Diameter of the lower part of a Column. It is also sometimes taken for the 12th part of an Ounce. See *Module*.

### *Mitchels.*

Purbeck stones for paving, pick'd all of a Size, from 15 Inches square to two Foot. Being sq ar'd, and hew'd ready for Paving a Stone-cutter in *London* tells me, they commonly sell them at about 2 s 10 d per Foot.

### *Model.*

An original Pattern which any Man proposes to imitate: properly (in Architecture) a small Pattern of a House, or the like, (made of Wood, or any other Material) made by a small Scale, wherein an Inch, or half an Inch represents a Foot, for the more exactly carrying on a great Design. Sometimes the Word is us'd, (tho' improperly) in the same Sense with *Module*.

### *Modern.*

This Word, in its genuine Meaning, is only applicable to such Architecture as partakes partly of the Gothick, retaining somewhat of its Delicacy and Solidity; and partly of the Antique, whence it borrows Members and Ornaments, without any Proportion or Judgment.

### *Module.*

A Measure made use of to regulate the Proportions of the several Members of a Column. In the Dorick Order, a *Module* is half the Diameter of the Body of the Column below: In other Orders 'tis the whole Diameter. A *Module* is commonly suppos'd to be divided into 60 equal Parts, call'd *Minutes*. *Module* comes from *Modulus*.

### *Modillions.*

In Italian *Modiglioni* (a sort of *Cantaliwers*) are little inverted *Consoles* under the *Soffit*, or Bottom of the *Drip*, in the Ionic, Composite and Corinthian Cornices, and ought to correspond to the middle of the Columns. These are particularly affected in the Corinthian Order, where they are always enriched with carv'd Work. In the Ionic and Composite they are more simple, having seldom any Ornaments, excepting sometimes a single Leaf underneath. In Latin they are call'd *Mutuli*.



*Modillion-cornice.*See *Cornice*. N. 9.*Moresk-work.*

A kind of Antick-work in Painting and Carving, after the Manner of the Moors, (whence it has its Name) consisting of several Grottesco's, wherein there is no perfect Figure, either of Men, or other Animals, and wherein there is a wild Resemblance of Birds, Beasts, Trees, &c. intermingled.

*Mortise.*

From the French, *Mortaise* the Hole made in one piece of Wood, to receive the Tenon of another Piece. See *Tenon*.

*Mortar.*

1. *What.*] From the French, *Mortier*, a sort of Plaister, commonly made of Lime, and Sand, and Water, used by Masons and Bricklayers, in Building of Walls of Stone and Brick. For plaistering of Walls, they make their Mortar of Lime, and Ox, or Cow-hair, tempered well together with Water, and this is commonly call'd *white Mortar*.

2. *Of making common* —] As for making of common Mortar, and for the Proportions of Lime and Sand to be us'd about it, as many Men are of many Minds, I shall give you their several Sentiments about this Matter.

*Vitruvius* says, you may put three parts of dug, (or Pit-sand) to one part of Lime, to make Mortar, but (says he) if the Sand be taken out of a River, or out of the Sea, then two parts thereof, and one of Lime (He also says, That if to River, or Sea-sand, you put a third part of Powder of Tiles, or Bricks, it works the better) But *Vitruvius's* Proportion of Sand seems too much, tho' he should mean of Lime before 'tis slack'd; for one Bushel of Lime before 'tis slack'd, will be five Pecks after 'tis slack'd.

About *London*, (where for the most part Lime is made of Chalk,) they put about 36 Bushels of Pit-sand to 25 Bushels of Quick-lime, that is, about a Bushel and a half of Sand, to a Bushel of Lime.

Some Workmen in *Suffex* tell me, That they commonly put two of their Court loads (that is about 24 Bushels) of Sand to 1 Load, (that is 32 Bushels) of Lime, which is but three Pecks of Sand to one Bushel of Lime.

Other Workmen in *Suffex* tell me, That their usual Proportion of Lime and Sand, in making of Mortar, is 4 Court-load, (that is about 48 Bushels of Sand to one Load, (or 32 Bushels) of Lime, which is exactly a Bushel and half of Sand to one Bushel of Lime, near the *London* Proportion. But they tell me, 'tis of Stone-lime; for they allow but three Load, (or 36 Bushels) of Sand to one Load, (or 32 Bushels) of run Lime; (for, say they, a Load

a Load of run Lime is nothing near so much as a Load of Stone- [or quick.] Lime) which is but 9 Gallons of Sand to a Bushel of Lime.

Other Workmen in other parts of *Suffex*, tell me, that they allow 4 Load (at 18 Bushels to the Load) of Sand, to one Load (or 32 Bushels) of Lime, which is  $2\frac{1}{4}$  Bushels of Sand to one of Lime.

Another Workman (in *Suffex*) tells me, that (to his Knowledge) some *London* Bricklayers put as much Lime as Sand in their Mortar; especially for Front-work.

A Gentleman in *Suffex* tells me, That the *London* Bricklayers make their Mortar much more durable than our Country ones; for he told me that at his Brother's House, and at another Gentleman's House (which he nam'd to me,) the Mortar was not scal'd at all; but at his own House (which was done by Country-workmen,) it scal'd very much, and fell out of the Joynts. But (said he,) the *Londoners* make their Mortar by proportioning their Lime and Sand, viz By measuring it all; but the Country-workmen, (for the most part) make it by gues. Now (said he), our Country workmen do not make their Mortr fat enough; for they put in too little Lime to their Sand. Nevertheless, his Workman told me, That he did put in, as near as he could gues (by the Shovels full,) at least twice as much Lime as Sand in his Mortar, and took Care to sift all his Lime and

Sand; and yet, (to my Knowledge) some of his Walls scal'd pretty much, especially those that were done towards the latter end of the Year; tho' (said he) I never made Morter so fat in my Life before. But indeed, none of his Walls were coped, they were only cover'd with Straw on the top, and Boards or Slabs laid on it to keep it on, which sometimes were blown off in the Winter, and so let in the Wet; which, (said he) was the cause of the scaling of the Morter; but his Master deny'd this, and said, it did so where it was never uncover'd all the Winter.

From all these various Proportions (of Lime and Sand) above-mentioned, all asserted by able Workmen, I think it reasonable to infer, That the Proportion of Lime to Sand in making of Mortar, ought to be various, according to the goodness or badness of these Materials; and therefore is rather to be regulated by the Judgment of experienced and skilful Workmen in each particular Country, than by any stated Proportions. So let this suffice (at the present) for the Proportions of the Materials. I shall next say something of —

*The Method of making of Mortar.* Some Workmen tell me, that 'tis the best way not to use Mortar as soon as 'tis made; nor (in making it) to make the Lime run before it is mixt with the Sand, (as some will do,) but rather to take the Sand and throw it on the Lime, whilst it is in Stones, be-

fore it is run, and so to mix it together, and then wet it; by which Means, (say they) it will be the stronger, and when it has lain a while made before it is us'd, will not be so subject to blow and blister.

Others advise to let *Mortar* (when made) lie in a heap two or three Years before 'tis us'd; for so (say they) 'twill be the stronger and better; for the Reason of so many insufficient Buildings, (say they.) is the using of the *Mortar* as soon as 'tis made.

Others tell us, (1) That when you slack the *Lime*, you must take Care to wet it every where a little. (but not over-wet it,) and cover with Sand every Laying, or Bed of *Lime* (being about a Bushel) as you slack it; that so the Steam, or Spirit of the *Lime* may be kept in, and not fly away, but mix it self with the Sand, which will make the *Mortar* much stronger, than if you slack all your *Lime* at first, and throw on your Sand all together at last, as some use to do. (2.) That you ought to beat all your *Mortar* with a Beater, 3 or 4 times over before you use it; for thereby you break all the Knots of *Lime* well together, and the Air which the Beater forces into the *Mortar* at every stroke, conduces very much to the Strength thereof. (3.) That when you design to build well, or use strong *Mortar* for Repairs, you should bear the *Mortar* well, and let it lie two or three Days, and then beat it well again when 'tis to be us'd. (4.) That in

*Summer-time* you should use your *Mortar* as soft as you can, but in *Winter* pretty stiff, or hard.

Mr. Worlidge says, That if you intend your *Mortar* to be strong, where you cannot have your choice of *Lime*, you may chuse your Sand and Water; for all Sand that is dusty, makes the *Mortar* the weaker; and the rounder the Sand, the stronger the *Mortar*, as is usually observ'd in Water-drift Sand; that makes better *Mortar* than Sand out of the Pit.

Therefore, (says he) if you have occasion for extraordinary *Mortar*, wash your Sand in a Tub, till the Water, after much stirring, come off clear, and mix that with new *Lime*, and your *Mortar* will be very strong and durable. And if your Water be foul, dirty, or muddy, your *Mortar* will be the weaker.

He also tells us That 'tis a great Error in Mason, Bricklayers, &c. to let the *Lime* slacken and cool before they make up their *Mortar*, and also to let their *Mortar* cool and die before they use it: Therefore, (says he) if you expect your Work to be well done, and long to continue, work up your *Lime* quick, and but a little at a time, that the *Mortar* may not lie long before it be used. So that you see, that in this Point also, Men differ in their Sentiments; some affirming it best to use their *Mortar* new, others, after it has lain, made some time.



An old experienced Mason of my Acquaintance, tells me, That being at work at *Eridge-place*, (at my Lord *Abergarveny's*) at *Fant* in *Suffex*, they would have him make use of some Mortar that had been made four Years. But he, (when he came to try it,) told them it was good for nothing, by reason it was so very hard, that there was no tempering of it. Whereupon a Jesuite (residing in the House, and who had been a great Traveller) told him, That to his Knowledge, at several Places beyond Sea, they always kept their Mortar 20 Years before they use it; but then (he saith) they keep it in Cisterns for the Purpose, and always keep it moist. Now, the old Mason (above-mention'd) tells me, he believes this Method may make the Mortar good and tough.

As for the Scaling, (or Crimbling) of Mortar out of the Joynts of Stone and Brick-walls, some Masons tell me, It proceeds from the badness of the Sand, or Lime or both, as well as from the Season of the Year when the Work is done.

3. *Of making other Kinds of.*] Besides the common Mortar, (us'd in laying of Stones, Bricks, and Tiles) above-mention'd, there are several other Kinds, as —

4. *White Mortar.*] This is used in plaistering of Walls and Ceilings, that are first plaister'd with Lome, and is made of Ox. or Cow-hair, well mixed and temper'd with

Lime and Water, (without any Sand:) The common Allowance in making this kind of Mortar) is one Bushel of Hair to six Bushels of Lime. The Hair serves to keep the Mortar from cracking, binding it, and holding it fast together.

5. *Mortar us'd in making of Water-courses, Cisterns, &c.*] This kind of Mortar is very hard and durable, as may be seen at *Rome* at this Day. It is used not only in building of Walls, but also in making of Cisterns to hold Water, and all manner of Water-Works, and also in finishing, or plaistering of Fronts to represent Stone work

And I find two kinds of this Mortar us'd by the Ancients; both of which are compounded of Lime and Hog's-grease; but to one is added the Juice of Figs, and to the other Liquid-pitch, and is first wet, or slack'd with Wine, then pounded, or beat with Hog's-grease, and Juice of Figs, or with the same and Pitch; that which has Pitch in it, is blacker and easily distinguish'd from the other by its Colour, and that which is plaister'd with this kind of Mortar, is done over with Linseed-oil.

6. *For Furnaces, &c.*] Some Chymists, in building their Furnaces, make use of a kind of Mortar made with red Clay, not too fat, least it be subject to Chinks; nor too lean, or sandy, least it bind not enough. This Clay is wrought in Water, wherein store of Horse-dung and Chimney-foot has been

been steeped and well mingl'd, by which a Salt is communicated to the Water, binding the Clay, and making it fit to abide the Fire.

Some Metalists use a kind of *Mortar* to plaister over the in-sides of their Vessels, (for refining of Metals) to keep the Metal from running out: And this kind of *Mortar* is compounded, and made of Quick-lime, and Ox-blood, the Lime being beat to Powder and sifted and then mix'd with the Blood, and beat with a Beater

The Glass-makers in *France* use a sort of *Mortar* (for plaistering over the in-sides of their Furnaces,) made of a sort of Fuller's-earth, which is gotten from *Beliere* near *Forges*, which is the only Earth in *France* that has the Property of not melting in this excessive Heat. And 'tis of this same Earth that the Pots are also made which will hold the melted Metal for a long time

7. *For Sun Dials.*] An exceeding strong and lasting Mortar to make a Dial-plain on a Wall, may be thus made: Take Lime and Sand, which temper with a sufficient Quantity of Linseed-oil; this spread upon the Wall, will harden to the Hardness of a Stone, and not decay in many Years. *Note*, If you cannot get Oil, you may temper your Lime and Sand with scum'd Milk, (but Oil is better) and this will last six times as long as the ordinary Plaister made of Lime and Hair with Water.

I have known a very strong and tough Mortar (for a Sundial-plain,) made in this manner. To about five or six Gallons of Brook-sand, (which was dry'd on an Oast, and sifted through a fine Splinted-sieve,) there was put as much, or rather more Sifted-lime, and a Gallon of Boreing (or Gun) Dust sifted also; all which was wet and temper'd well with 6 or 7 Gallons of Scum'd-milk, and about a Pottle of Linseed-oil. This was laid on the Wall first, well wet with Milk; but the Workman found much Trouble to set it smooth, by reason it dry'd so very fast; but by keeping it often sprinkl'd with Milk, and smoothing it with the Trowel, it at last set with a very smooth and shining Surface. But notwithstanding all his Care, it (as it dry'd) crack'd pretty much; which I fancie might proceed from the want of Hair in it: It did also blow in Blisters, tho' the Lime were sifted; and therefore I fancie, that if the Lime had been prepar'd as it is in *Fresco Painting*, it might have been prevented.

8. *Extraordinary good for Floors, Walls, and Ceilings.*] If you temper Ox-blood, and fine Clay together, and lay the same in any Floor, or plaister any Wall, or Ceiling with it, it will become a very strong and binding Substance, as I have been told, (says my Author) by a Gentleman Stranger, who affirm'd to me, That the same is of great use in *Italy*.

9. *A profitable and cheap kind of--*] A wise, wealthy, and ancient Soap-boiler, dwelling without *Aldgate*, has (for the better Encouragement of others,) long since erected a fair and stately Edifice of Brick for his own Habitation, upon the good Success whereof he has since built another House of some Charge and good Receipt; the *Mortar* whereof did consist of two Load of waste Soap-Ashes, one one Load of Lime, one Load of Lome, and one Load of *Woolwich* Sand.

So likewise, another Gentleman of the same Faculty, (being likewise of good Credit, and great Experience) has us'd only Lome and Soap-Ashes temper'd and wrought together for *Mortar*; whereby he has laid both the Foundations, Chimneys, and their Tunnels in his Dwelling-house in *Southwark*, and they have endur'd those Storms already past, which have overturn'd many other Tunnels, both new and old, that were built with the ordinary *Mortar*.

It may be, that many Lime-men (and some of those Bricklayers that are in Fee with 'em) may speak against this Practice, and labour (by all possible Means) to discredit it; but there is no *Reason* can hold against *Experience*, nor no *Malice* so great; but *Truth* in her Time will be able to vanquish. And if these three *Tryals* be not thought a competent Number to give Credit to a new Invention, I can (says my Author) back and confirm them

with threescore more at the least, which have been already made within the City of *London*, and Suburbs thereof.

True, indeed, this kind of *Mortar* is somewhat rough in the laying, and more sharp and fretting to the Fingers than ordinary *Mortar*, which makes it so much neglected and decry'd by some Workmen: But (says my Author) I could soon remedy these two slender Faults; the first whereof is rather an excellent Quality in *Mortar*, than a Fault. Yet for the Good-will I bear to all the excellent uniform Buildings of our Time, I will set down the best Advice that I can in this Case, and such as I dare warrant upon my Credit. And first, concerning the Roughness of this kind of *Mortar*, Who is so blind, as not to see how to remedy it? (For 'tis rather a Work of Labour than of Skill;) for the Soap-ashes (which are in hard Cakes,) being either ground, or stamped into a fine Powder, before they be mixt with the Sand, will soon be brought to a smooth Temper. And here we have no need to fear the Charge that will arise thereby; for I dare undertake, that the Profit of one Day's Labour will answer the Charge of three Men's Wages, in the Difference of Price that will be found betwixt one Load of these Ashes, and one hundred of Lime.

Then, *Secondly*, the Sharpness wherewith they offend the Bricklayer's Fingers, may in some sort be avoided by wearing



ing of Gloves, (without which they seldom lay any Brick at all) to avoid the like Effects, which they find in Lime.

But for an assured help in this case, (if the sharpness be such as cannot be endur'd of Workmen) let these Ashes be re-imbibed in Water for some reasonable time, till more of their Salt be extracted from them, and then (without question) they will find them gentle enough, and much of their fretting Nature taken away from them.

10. *For laying of Tyles* ] I know several Places in *Sussex*, where for laying of Tiles upon Houses, &c. they make a kind of Mortar of Lome, and new Horse-dung, well temper'd and mix'd together. This some Workmen commend for a good, strong, and cheap Mortar; and others tell me, That 'tis more agreeable to the Tiles, than the common Mortar made of Lime and Sand; which, say they, corrodes and frets the Tiles, causing them to scale and fly to pieces, which this does not.

I have taken particular notice of one House, where the Tiles were laid in this kind of Mortar and had been laid about four or five Years, and yet the Mortar did stick very well under the Corner-tiles, where it generally lies thickest.

11. *For Plastering of Fronts of Houses in imitation of Brick-work* ] Some Workmen tell me, That they make Mortar, (for this kind of Work) of Powder of Bricks, sharp Sand, and Lime, and some Red-oker. I know

a House that is Plaster'd with this kind of Mortar; it has been done above twenty Years, and yet looks very well, and passes (with common Passengers) for a Brick House, tho' it be only Timber Plaster'd over. They have commonly 1 s per Yard for doing such Work, only Workmanship.

12. *How much allow'd to a Rod of Brick work, or a Square of Tiling* ] Workmen commonly allow a hundred and half, (or  $37\frac{1}{2}$  Bushels) of Lime, and 2 Load, (or 72 Bushels) of Sand to make Mortar enough for a Rod of Brick work

And for Tiling, 4 Bushels of Lime, and 6 or 8 Bushels of Sand will make Mortar sufficient to lay 1000 of Tiles, which is about a Square and half. So that a Square of Tiling will take up (for Mortar) about  $2\frac{2}{3}$  Bushels of Lime, and about 5 Bushels of Sand.

13. *A Caution about* ] 'Tis a general Caution in all parts of a Building, that where Stones, or Bricks are contiguous to Timber, they ought to be laid dry, or without Mortar; because Lime and Wood are insociable, the former very much corroding and decaying the other.

14. *Rough Mortar*, which see in R.

*Mosaicque or Mosaical-work.*

Is a curious kind of Work, consisting of small inlaid Pebbles, Cockles, and Shells of sundry Colours; and (of late) likewise with pieces of Glass figured with pleasure.

*Moss.*

*Moss.*

*Us'd in Tiling*] In some parts of *Sussex* they lay Tiles in Moss instead of Mortar; and when the Workmen get the Moss themselves, they are allow'd 2 d. in a Square the more for their Work. But some Workmen condemn this way of Tiling with Moss; because, say they, in windy wet Weather when the Wet, Rain, Snow, or Sleet is driven under the Tiles in the Moss; if there follow a Frost whilst the Tiles are wet, it then Freezes the Moss, and so raises the Tiles out of their Place.

*Mouldings.*

Under this Name are comprehended all those *Jettings* or *Projectures* beyond the *Naked* of a Wall, Column &c which only serve for Ornament; whether they be square, round, straight or crooked. Of these there are seven Kinds more considerable than the rest, *viz* the *Doucine*, the *Talon* or *Heel*, the *Ovolo* or *Quarter-round*, the *Plinth*, the *Astragal*, the *Denticle*, and the *Cavetto*.

*Multiplication*

Of Feet and Inches. by Feet and Inches.] See *Cross-Multiplication*.

*Munions,*

In Architecture, are the short upright Posts that divide the several Lights in a Window-frame.

*Muring.*

An old Term in Architecture, signifying the Raising of Walls. See *Walls*.

*Mutule.*

Same as *Modillions*: which fee. The *Latins* call it *Mutulus*.

*Nails.*

1. *W<sup>Hat</sup>*] These are a Material so well known, that (in the general) they need no Description. But the particular Kinds of 'em (which are very numerous) shall be described in the following Articles.

2. *Back — and Bottom. —*] These kinds of Nails are made with flat Shanks, and so as to hold fast, and not open the Grain of the Wood; being proper for Nailing of Boards together for Coolers, for Guts to save Water under the Eaves of a House, or for any Liquid Vessels made of Planks, or Boards.

3. *Clamp.*] These are proper to fasten Clamps in Building, and repairing of Ships.

4. *Clasp.*] These are of two sorts, *viz*. (1.) *Long*, proper for any fine Building with Firr, or other soft Wood: The clasping of the Head brings them into little compass, and admits of their sinking into the Wood, makes the Work smooth, and will admit a Smoothing-plane to go over them when drove. The sizes are

are 7,  $7\frac{1}{2}$ , 8, 10, 13, 14, 15, 18, 21, 22, 23, 28, 32, 36, and 40  $\text{lb}$ . per Thousand.

(1.) *Strong*, these are fit for Oak, and other hard Woods. The sizes are 15, 18, 28, 32, and 40  $\text{lb}$ . per Thousand.

5. *Clench*.] These are commonly us'd by Boat, Barge, and Lighter Builders, with Boves, and often without: They are proper Nails for any Building with Boards, that must be taken down again, because they will drive without splitting the Wood, and draw, (or admit of punching out, (if right made) without breaking. The sorts are too many to be here enumerated, for fine Work they are made with Clasp-heads.

6. *Clout*] These are commonly us'd for nailing on of Clouts to Axle-trees, but are proper to fasten any Iron to Wood; and (if right made) the Heads will hold driving home without flying. The sizes are  $4\frac{1}{2}$ , 7, 8, 9, 12, and 15  $\text{lb}$  per Thousand.

7. *Deck*] These are proper for fastening of Decks in Ships, doubling of Shipping, and Floors laid with Planks. They are of two sorts, Dve-headed, and Clasp-headed. The sizes are  $4\frac{1}{2}$ ,  $5\frac{1}{4}$ ,  $6\frac{1}{2}$ , 7, 8, and 9 Inches long.

8. *Dog*.] These are proper for fastning of Hinges to Doors, for (if made right) they will hold the Hinge close without the Heads flying off, or without the help of botching, by putting Leather between the Head and the Hinge. The sizes are 9, 12, 20, 25, 30, 40, 60, 80, and 120  $\text{lb}$ . per Thousand.

9. *Flat Point*] These are of two sorts. viz (1.) *Long*, which are much us'd in Shipping, and are very proper where there is occasion to draw and hold fast where there is no Conveniency to clench. The sizes are  $7\frac{1}{2}$ , 8, 9, 10, 11, 12, 13, 14, 16, 18, 21, 22, 23, 26, 40, 55, 75, and 110  $\text{lb}$ . per Thousand. (2.) *Short*, these are fortified with Points to drive into Oak, or other hard Wood. and are often us'd to draw the Sheating boards to, very proper where Oak or other hard Wood is us'd. The sizes are 5, 9, 18, 26, 32, 40, 55, 75, and 110  $\text{lb}$  per Thousand.

10. *Jobent*] These are commonly us'd to nail thin Plates of Iron to Wood, and to nail on small Hinges for Cub-board-doors, &c. The sizes are 2 and 3  $\text{lb}$ . a Thousand.

11. *Lead*] These are commonly us'd to nail Leather, and Canvas to hard Wood. The sizes are  $4\frac{1}{4}$ , 7, and 8  $\text{lb}$ . per Thousand.

12. *Port*] These are commonly us'd to nail Hinges to the Ports of Ships. They must be made strong, because they will not admit of being clenched, without being prejudicial to the Lining; and therefore care must be taken that they be demanded of such a length, as that they may come near through, (so as to take sufficient hold) and yet not so long as to come quite through. The sizes are  $2\frac{1}{2}$ , 3, 4, and 5 Inches long.

13. *Pound*.] These are four square in the Shank, and are much



much us'd in *Essex, Suffolk, and Norfolk*; but in few other Countries, except for *Paleing*. The sizes are 6 d. 8 d. 10 d. 20 d. and 40 d.

14. *Ribbing.*] These are commonly us'd to fasten the Ribbing, to keep the Ribs of Ships in their Place in Building; if these Nails are made right, they will hold fast, and draw easie, without injuring the Ribbing, or Timbers. They are also very useful to fasten Timbers to be used for a while, and taken down again for further Service. The sizes are 5,  $5\frac{1}{2}$ , 6,  $6\frac{1}{2}$ , 7,  $7\frac{1}{2}$ , 8,  $8\frac{1}{2}$ , and 9 Inches long.

15. *Rose*] These Nails are drawn four square in the Shank, and commonly in around Tool, as all common 2 d. Nails are, and most commonly 3 d. and 4 d. In some Countries they make all their larger sort of Nails in this shape, but their being square drowneth the Iron, and the Nails do not shew so fair to the Eye, as those laid upon the flat; but if made of tough Iron, they are very serviceable. The sizes are  $1\frac{3}{4}$ , 2,  $2\frac{1}{2}$ ,  $2\frac{3}{4}$ , 3,  $3\frac{1}{2}$ ,  $3\frac{3}{4}$ , 4,  $4\frac{1}{4}$ ,  $4\frac{3}{4}$ , 5, 9, 10, 13, 14, 16, 17, 18, 24, 26, 28, 30, 32, 36, and 40  $\text{lb}$ . per Thousand.

16. *Rother*] These are principally to fasten Rother Irons to Ships, and require a full Head, and to be made so as to hold fast in the Wood to the greatest Degree, without Clenching.

17. *Round head*] These are very proper to fasten on Hinges, or for any other use where a neat Head is required; and

if made of the best tough Iron, as they ought to be, are very useful. The sorts are Tacks, 2 d. 3 d. 4 d. 5 d. 6 d. and 8 d. The same tinn'd for Coffin-handles, and fine Hinges.

18. *Scupper.*] These are principally to fasten Leather, and Canvas to Wood, and therefore require a broad Head, that neither may work loose. The sizes are  $4\frac{1}{4}$ , 7, and 8  $\text{lb}$ . a Thousand.

19. *Sharp.*] These are much us'd in all Countries, especially in the *West Indies*, being made with sharp Points, the Shank flat, and is a very proper Nail for ordinary Uses, where soft Wood is us'd. The sizes are  $2\frac{1}{2}$ ,  $2\frac{3}{4}$ , 3,  $3\frac{1}{2}$ , 4,  $4\frac{1}{2}$ , 5,  $5\frac{1}{2}$ , 6,  $6\frac{1}{2}$ ,  $7\frac{1}{2}$ , 8, 9, 10, 11, 12, 13, 14, 15, 18, 19, 20, 21, 22, 23, 28, 32, 36, 40, 55, and 75  $\text{lb}$  per Thousand.

20. *Sheathing*] These are commonly us'd to fasten Sheathing-boards to Ships. The Rule for using them, is to have the Nail full three times as long as the Sheathing-board is thick, provided the Plank be of a sufficient thickness, which ought to be enquir'd into; for the Sheathing-nail ought not to go through the Plank by half an Inch, least it should make the Ship leaky. The Shank must not be so strong as to cleave the Board, and the Head must be well clapsed, or died, so as it may sink into the Wood, and the Ships side left smooth. They are also a useful Nail in doubling of small Ships. The sizes are  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ ,  $1\frac{3}{4}$ , 2,  $2\frac{1}{4}$ ,  $2\frac{1}{2}$ ,  $2\frac{3}{4}$ , 3,  $3\frac{1}{4}$ , and  $3\frac{1}{2}$  Inches long.

21. *Square.*]

21. *Square.*] These are of the same shape as sharp Nails, and is a most useful Nail for Oak, and other hard Wood, as also for nailing up Wall-fruit, the Points being made something stronger than the Points of sharp Nails, which fortifies them to go forward, and not turn back upon a small Opposition, as weaker points will do. The sizes are  $2\frac{1}{2}$ ,  $2\frac{3}{4}$ , 3, 4,  $4\frac{1}{2}$ , 5,  $5\frac{1}{2}$ , 6,  $6\frac{1}{2}$ , 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 22, 23, 24, 28, 30, 32, 36, 40, 55, and 75  $\text{lb}$  per Thousand.

22. *Tacks*] The smallest of these are to fasten Paper to Wood, midling for Wool-cards, and Oars, and the larger for Upholsterers, and Pumps. The sizes are  $2\frac{1}{4}$ , 5, 6, 8, 9, 14, and 15 Ounces a Thousand.

There are many more sorts of Nails, which for Brevity, (and because they are not so proper for our present Business) I shall omit

23. *Allowance of in Lathing.*] In Lathing, the common Allowance of Nails is 500 to a Bundle of 5 Foot-laths, and 600 to a Bundle of 4 Foot-laths, at six Score Nails to the Hundred.

24. *Allowance of in Flooring*] In laying of Floors 200, (that is 240) Nails is a compleat Allowance for a Square of Flooring.

25. *To Toughen.*] A Neighbour of mine, a Mason, tells me, That — the Ironmonger at Rotherbridge taught a Kinsman of his, (who is also a Mason) to toughen his Nails that were brittle, by heating

them hot in the Fire, (in a Fire-shovel, or the like) and putting some Tallow, or Grease to 'em, the first he says is best. This Ironmonger keeps a Nail-ler at work.

26. *Of driving*] There is requir'd a pretty Skill in driving a Nail; for if, (when you set the point of a Nail) you be not curious in observing to strike the flat Face of the Hammer perpendicularly down upon the Perpendicular of the Shank the Nail, (unless it have good Entrance) will start a-side, or bow, or break, and then you will be forced to draw it out again with the Claw of the Hammer. Therefore you may see a Reason when you buy a Hammer, to chuse one with a true flat Face.

Perhaps it may not be unacceptable to some Readers, if I here mention a little *Trick* that is sometimes used among some (that would be thought cunning Carpenters) privately to touch the Head of the Nail with a little Ear-wax, and then lay a Wager with a Stranger to the Trick, that he shall not drive that Nail up to the head with so many blows. The Stranger thinks he shall assuredly lose; for the Hammer no sooner touches the head of the Nail, but instead of entering the Wood it flies away, or starts aside, notwithstanding his utmost care in striking it down right.

## Nave,

In Architecture is commonly us'd to signifie the main part, or Body of a Church; which by the nearness of the word may seem to be deriv'd from the *Latin*, *Navis* a Ship; but it may more significantly be deriv'd from the *Greek* *ναός*, (that is *Naos*) a Temple

## Newel.

The upright Post that a pair of Winding stairs are turn'd about.

## Niches, or Nices,

The hollow places in a Wall, wherein Statues or Images, are set. If these Images be of white Stone, or Marble, let not the Concavities be colour'd too black; for tho' *contraria juxta se posita magis illucescunt*, be an old Rule, yet 'tis observ'd, that our sight is not well pleas'd with sudden changes, from one Extream to another; therefore let them have rather a duskish Tincture, than an absolute black.

## Oak.

1. **W**<sup>7 Hat</sup>] This is a sort of Timber well known, and needs no Description. 'Tis one of the pincipal Materials in Building, being strong in all Positions, and may well be trusted in cross and transverse Work; as for Summers, and

Girding, or Binding-beams, &c.

2. Of *Sawing*.] Oak is worth sawing 2 s 8 d. per hundred, some 3 s. and upwards to 3 s. 6 d. per hundred, that is the hundred Superficial Feet.

## O G. Ogee, or Ogive.

A sort of Moulding in Architecture, consisting of a round and a hollow, like an S; *Virtruvius* makes it 2 Quarter-circles, *Scammozzi*, and some other Authors make the Arches flatter, by striking them from two Equilateral Triangles. See *Cima*.

## Orders,

In Architecture are the different Forms and Proportions of Columns, &c. There are five Orders (commonly reckon'd) in Architecture, viz. The Tuscan, Dorick, Ionick, Corinthian, and Composite. Of all the Parts, which enter the Composition of a Magnificent Building, the Orders of Columns being the most considerable I shall transcribe from *M. le Clerc* all that is necessary to be said upon this Article.

An Order of Columns, is usually understood of a Column, bearing its Entablement; but the Order is scarcely compleat, except the Column be rais'd on a Pedestal.

The Pedestal, Column, and Entablement, are three Compound Parts, each consisting of three others.



The Parts of the Pedestal; are the Base, Die, and the Cornice; those of the Column, the Base, Shaft, and the Capital. Those of the Entablement, the Architrave, Frieze and the Cornice; each of which Parts have their particular Characters and Members; call'd by the general Names of *Mouldings* or *Ornaments*.

The Ancients have given us five several Orders of Columns; the Tuscan, Dorick, Ionick, Roman and Corinthian.

The Tuscan Order is the strongest, and the most simple of all others: Its Name shews its Original.

If we believe *M. de Chambray* in his Parallel, this Order ought never to be used any where but in Rustick, or Country Houses and Places. And 'tis certain, that in the manner *Vitruvius*, *Palladio*, and some others describe it, it scarce deserves to be used at all. Methinks, however, in *Vignola's* manner of Composition, it has certain Beauties even in its Simplicity, which add a value to it, and render it worthy to be used not only in private Houses, but also in publick Buildings; as in Portico's of Markets, of publick Halls, in Magazines or Granaries of Cities, and even in Palaces, and Seats of Princes and Noblemen, particularly in the lower Apartments, Offices, Stables, (not Equeries, as 'tis translated lately,) &c. And in general, in all Places where Strength and Simplicity are required, and where any of the richer and more delicate Or-

ders would be unsuitable.

The Dorick Order is the most ancient, and was given us by the *Greeks*. Its Composition is Grand and Noble; and the Triglyphs, which make the Ornaments of its Frieze, bearing some resemblance to a Lyre, seem to intimate it to have been originally intended for some Temple consecrated to *Apollo*. As we are nowadays furnished with richer and more delicate Orders for Temples; the Dorick is most properly used in the Gates of Cities, in Arsenals and Places of Arms, in Halls of Guards, and other Buildings that have relation to War; where Strength, and a rough, but noble Simplicity are particularly required. In the most ancient Monuments of this Order, the Columns are without Bases, the reason of which is not easy to assign. Monsieur *de Chambray*, in his Parallel, is of opinion with *Vitruvius* that the Dorick Column not the Ionick, as *le Clerc's* Translator has it, having been composed in imitation of a naked Man, nervous and robust as an Hercules, it ought to have no Base; imagining a Base to be that to a Column, which a Shooe is to a Man. But for my own part, I must confess, I can't consider a Column without a Base, but in comparing it to a Man, I rather form the Idea of a Man without Feet, than without Shooes. For this reason, I am rather of opinion, either that the ancient Architects had not yet thought of adding Bases to their Columns,

or that they declin'd on purpose to give them any, with design to keep the Pavement clear and unembarrass'd with the Angles and Projectures of Bases, which are apt to occasion People in passing by to stumble. This too appears the more probable, in regard the Architects of those Times used to range their Columns exceedingly near one another; so that, had they been furnish'd with Bases, the Passages between, would have been extremely narrow and incommodious. And this appears to be the reason why *Vitruvius* orders the *Plinth* of the *Tuscan Column* to be rounded off; that Order, in the manner he describes it, being particularly adapted to the servile Offices of Business and Commerce where Conveniency is always to be consulted before Beauty. Be this as it will, every Man of good Taste will allow, that a Base adds a Grace to a Column; and that it is a very necessary Appendage, in regard it makes it stand the more firmly on its Plan: So that if no Columns are now made without Bases, this ought not to be imputed to the Prejudices of our Architects, as some Admirers of Antiquity will have it, but to their Prudence.

The first Idea of the *Ionick Order* was given by the *Ionians*, who according to *Vitruvius*, compos'd this Column on the Model of a young Lady dress'd in her Hair, of an easie and delicate Shape; as the *Dorick* had been form'd on the Model of a strong robust Man.

'Tis said, the Temple of *Diana* at *Ephesus*, the most celebrated Edifice of all Antiquity, was of this Order. It may now be used in Buildings of Piety, as in Churches, Courts of Justice, in Apartments of Ladies, and in other Places of Quietude and Peace.

The *Roman Order* is usually call'd the *Composite* in regard its Capital is compos'd of the principal Parts of the Capitals of all other Orders. It has a Quarter-round as the *Tuscan* and *Dorick*; Volutes as the *Ionick*; and a double Row of Leaves underneath, as the *Corinthian*. I call it *Roman*, as believing, with many others, that the *Romans* first invented it. Most of our Architects, in compliance with Usage and Custom, place it this after the *Corinthian*; doubtless because it was the last that was invented. *Scammozzi* is the only Author who varies from the Rule; but he does it with so much Judgment, that we make no scruple to imitate him.

This Order may be used in every place, and on every occasion, where 'tis requir'd that Strength, Richness, and Beauty should be found together.

The *Corinthian Order* is the Noblest, the Richest, and the most Delicate Order of Architecture. This is indeed a Master-piece of Art, for which we are indebted to the City of *Corinth*: It ought always to be used in the most stately and most magnificent Buildings.

These several Orders have been very judiciously compos'd at various times, in order



to suit the various kinds of Buildings, which either Necessity or Magnificence should occasion Men to erect; and these are ever made more or less simple, each in its kind, and more or less slender, according to the Buildings they are used in, and the riches of the Princes, People, or private Persons who build them. So far says, *M. le Clerc*. It may not be amiss here to add, that the Herb *Acanthus*, or *Branca Urfinz*, or *Bears-foot*; whose Leaves are represented in the Capital of the *Corinthian Column*, is said to have been the first Occasion of this Ornament; which was invented by *Callimachus*, an ingenious Statuary of *Athens*, upon seeing this Plant spreading it self around a Basket that had been placed upon the Tomb of a young *Corinthian Lady* and cover'd over with a Tile. The Leaves he imitated in his *crollis* or *Volutes*, the Basket in the *Vase* or *Tambour*, and the Tile or Covering in the *Abacus*. There are two kinds of *Acanthus*, the one wild, and arm'd with Prickles, the other smooth, and cultivated in Gardens; the former of which we find represented in *Gothick Buildings*, and the latter in those of the *Antique*.

### Orlo.

The *Plinth* or *Square* under the Base of a Column, or under the Base of its Pedestal.

### Orthography,

Is a Word deriv'd from the Greek, *Orthos*, true or right, and *Grapho*, to write or describe. In Architecture, it signifies the Front or (any other) upright Side of a House; or the Draught on Paper of those Parts of a House.

### Ovolo,

As *Echinus*.

### Over span.

See *Clamp*. N. 2.

### Painting.

1. **O**F Out-door-work in general.] Doors, Shop-windows, Window-frames, Pediments, Architraves, Friezes, and Cornices, and all other Timber-works that are expos'd to the Weather, ought at first setting up be Prim'd with *spanish brown* *spanish white* and Red-lead (about a fifth part) to make the other two Colours dry; these well ground with Linseed-oyl, will make an excellent Primer; then afterwards with the same Colour, (but much whiter) for a second Primer, and lastly, with fair White, made of White-lead, and about a fifth part in quantity, (not in weight) of *spanish white*.

Out-door-work thus colour'd, may be afforded for 3 *d.* or 3 *d.* half-penny, or 4 *d.* the Yard Square, for each time laid over.

2. Of



2. Of *Measuring*.] Painters measure their Work by the Yard superficial, and in taking the Dimensions of their Work, they run a String all over where the Brush goes ; for they say, (and 'tis but Reason) we ought to be paid for all where the Brush goes. But sometimes in Rails, and Banisters, they will measure it as if it were flat Measure. I have seen the Experiment try'd, and the Difference would not countervail the Trouble of girting. So that Painters-work is measur'd the same as Joiners, only Painters never reckon Work and half, but work once, twice, or three times, &c. done over ; or at so much per Yard, according to the Work. They always reckon double Work for painting of Window-shutters, if both sides are painted alike : otherwise, according to the value of the Painting. But they reckon Sash-frames by themselves, ( at so much per Piece, and likewise Mantle-pieces) when there is no Painting about them ; but if they stand in the Wainscot, they measure them as plain Work, deducting nothing for the Vacancy.

3. Of *Wainscot-colour* ] If on new Stuff, is worth about 8 d. per Yard, on old Colour about 7 d.

4. Of *Walnut-tree Colour*.] It is worth 10 d. say some, others say 16 or 18 d per Yard.

5. Of *ordinary branch'd Painting*.] Is worth 12, 14, or 16 d. per Yard.

6. Of *ordinary Marble-colour* ] If on new Stuff, is worth 1 s. per Yard on old Colour, 9 d.

7. Of *white Colour*.] Is worth 10 d. or 1 s. per Yard.

8. Of *plain Japan, either black or white*.] Is worth 3 s. 6 d. or 4 s. per Yard.

9. Of *Gates, and Outward-doors* ] Is worth 3 d. or 3 d. half-penny, or 4 d per Yard.

10. Of *Shop windows*.] The same as Gates, and Outward-doors.

11. Of *Window-frames*. Is worth from 3 d. or 4 d. to 6 d. or 8 d. each Light, according to their Size.

12. Of *Sash-lights*.] Is worth about 1 d per Light.

13. Of *Sash-frames*.] Is worth about 1 s per Frame.

14. Of *Iron-casements*.] Is worth three half-pence, 2 d. or 3 d. per Casement, according as they are of bigness.

15. Of *Iron bars of Windows*.] Is worth 1 d. per Bar, or more, if very large.

16. Of *Chimney-pieces* ] Is worth about 2 s per Chimney-piece.

17. Of *Pales* ] Is worth about 10 d. or 12 d per Yard.

18. *Colours* ] The Colours us'd in Painting, are of several Kinds as White, and Red-lead, Spanish white, and brown, Verdigrease, Smalt, &c. Of which see in their proper Places of the Alphabet.

### *Paleing.*

1. With *Cleft pales, Rails and Posts*.] Some Work men tell me, That for paleing with 3 Rails, Cleft-pales, Rails and

Posts, cleaving, making, and setting up, they have 3 s. 6 d. or 4 s. per Rod, Felling the Timber and all. But then their Materials are all laid down to their Hand, so that they have no carrying.

Others tell me they have 2 s. 6 d. per Rod, for (only) making and setting up of Cleft-posts, Rails, and Pales.

2. *With saw'd Pales, Rails and Posts.*] Some Workmen tell me they have 1 s. 6 d. per Rod for making and setting up of Saw'd-posts, Rails, and Pales.

### Pales.

1. *Price of Cleaving*] Some Workmen tell me, That they have 2 s. per Hundred for cleaving of Pales; but others that cleave in Brocks, say they, have but 1 s. 8 d. per Hundred. Note, A hundred of Pales is various, according to their length. for of 5 Foot Pales, 5 Score Pales is a Hundred, but of 4 Foot there goes 6 Score, and of 3 Foot, 7 Score to the Hundred.

2. *Of the Number a Tun will make.*] This is very uncertain, by reason of the Difference in Timber's cleaving, some cleaving much better, (and less to waste) than other some; yet by comparing several Observations, which I receiv'd from an ingenious Workman, I gather, that a Tun of good cleaving Timber may make three Hundred. (or perhaps something more) of 4 Foot Pales and a Tun of the like Timber may make 4 Hundred of 3 Foot Pales; the Reason of which

is, because Timber generally cleaves better, (and less to waste) in short lengths than in longer.

But the Number of *Sawed-pales* (that may be made of a Tun of Timber) is more certain, than of *Cleft-pales*; for I have found (by the Draught of a Tree, and Calculations,) that a Tun of Timber will make about 400 Foot of Inch-boards; which (if the Timber fit for length) being cut out

into  $\left\{ \begin{array}{l} 5\text{---Foot} \\ 4\text{---Foot} \\ 3\text{---Foot} \end{array} \right\}$  Pales, will make

$\left\{ \begin{array}{l} 80 \\ 100 \\ 133 \end{array} \right\}$  Pales, each a Foot broad; which in Paleing

will reach about three Times as far as the like Number of Cleft Pales will do

### Palisade, or Palisado.

1. *What.*] A sort of slight open Pale, or Fence, set to beautifie a Place, or Walk.

2. *Pales.*] Some Workmen tell me, that making and setting up of Pallisado-pales, (if the Heads are handsomely cut, the Palisades mortis'd through, the Posts at the Corners higher than the rest, and the Rails, Kneeling-rails) is worth 14 s. per Rod, Carpenter's Work, and wing.

An ancient and experienced Carpenter informs me, That the Carpenter had 25 s. per Rod, for Timber and Workmanship; for the Palisado-pales at the Bowling-green at

Mount

*Mount Ephraim at Tunbridge-wells* and likewise for the Palisades at the High-house behind the Bowling-green. This old Carpenter told me, he guess'd the Carpenter's Work of these Palisades to be worth about 10 s. per Rod.

I am also inform'd, that the Carpenter had 30 s. per Rod for the Palisades at the Walks at *Tunbridge-wells*. I mention these about the Wells, because I suppose them to be well known to most Gentlemen. For there is such Variety in the Workmanship of Palisado-pales, that there can be no certain Price for it by the Rod.

3. *Gates.*] These are as various in the Forms and Fashions as Palisado-pales, and consequently their Prizes are also as various, viz. From 6, or 7. to 10 or 12 s. per Yard running Measure, at about 6 or 7 Foot high

4. *Of Iron*] Palisado-work of Iron in Gates, or other-ways, is from 4 d per Pound to 8 d according to the Work.

### *Pallification.*

A Term in *Architecture*, signifying the piling of the Ground-work, or strengthening of the Ground-work with Piles of Timber driven into the Ground, when they build upon a moist and marshy Soil.

### *Pantry.*

A Room to set Victuals in, a Store-room.

### *Pan-tiles.*

See *Tiles*, Numb. 7.

### *Parapet.*

From the Italian *Parapetto* a *Save Breast*, is a little Wall, or sometimes a Rail serving either as a *Rest* for the Arm or as an *Inclosure* about a Key, Bridge, Terrass, &c

### *Parastatæ.*

Pilasters which stand alone, not adjoining to the Wall, and which the French call *Isoles* or *Insulate*: from *Insula* an *Island*, as I take it.

### *Pargeting*

1. *What*] In *Architecture*, signifies the plaistering of Walls; sometimes 'tis us'd to signify the Plaister it self

2. *Price.*] Pargeting, or plaistering is of divers Kinds. As (1.) White Lime and Hair-mortar laid upon bare Walls, at 3 d or 4 d the Yard (2.) Upon bare Laths, as in Partitioning, and plain Ceilings, from 8 d to 14 d per Yard (3.) Rendering the insides of Walls, or doubling Partition walls, at 2 d. or 3 d the Yard. (4.) Rough-cast upon Heart laths, from 1 s. to 3 s the Yard square, Workmanship and all Materials. (5.) Plaistering upon Brick-work with finishing Mortar, in Imitation of Stone-work, from 1 s. to 18 d. or 2 s. the Yard square. (6.) And the like upon Heart laths, from 18 d. to 2 s or 3 s. the Yard. See more in *Plaistering*.

### *Parlour.*

A fair lower Room design'd principally for the Reception,



and Entertainment of Company.

### Partitions.

1. *Of Framing* ]. See *Framing*, Numb. 4.

2. *Of Measuring*.] Partitions are commonly measur'd by the Square; but they commonly make Deduction for Doors and other Vacancies.

### Passage.

An Entry, or narrow Room, serving only for a Thorough-fair, or Entrance into other Rooms.

### Paving.

1. *What*. Is the laying a Floor with Bricks, Tiles, or Stones

2. *With Statute-bricks* ] Paving with Statute-bricks, is done at London for about 4 d. per Yard. But I know some Workmen in *Suffex* that have 5 d. or 6 d. per Yard, into which Price they make ready the Floor for the Work, by clearing out the Earth, and levelling the Floor with a convenient quantity of Sand, (if they lay the Bricks dry, as sometimes they do) which they spread evenly with the Rake; then laying the Bricks level by a Line, they (with a Trowel) put a sufficient quantity of Sand under each Brick, to raise him full as high as (or a little higher than) the Line, and so knock him down (level with the Line) with the Handle of their Hammer; which being done they ram in the Sand (on the side of, and)

against the bottom of the Brick with the Handle of their Hammer, to make him lie fast. Having thus laid the whole Floor, they strew Sand all over the Bricks, to the thickness of an Inch, more, or less, with a Command to the People of the House, that they let it lie for the space of five or six Weeks; now and then sweeping it too and fro, that thereby, and by their treading on it, it may fill up all the Joynts betwixt the Bricks.

If they lay the Bricks in Mortar, the Price (they say) is the same as if they were laid dry.

There are some Masons, that having laid the Floor dry, will make a very thin Mortar, which they spread all over the Floor. sweeping it too and fro with a Broom, to fill up the Joynts of the Bricks

This kind of paving (with common or Statute-bricks) is usual for Cellars, Wash-houses, Sinks, Fire-hearths, and for Halls and Kitchens in common Houses.

Of these kind of Bricks, 32 will pave a Yard square, if laid flat-ways, and 64. if edge ways.

3. *With square Tiles*. or (as some call them) *Paving-bricks*.] The paving with Square-tiles is commonly valu'd by the Square, and the dearer, the smaller the Tiles are; for these kind of Tiles are of several Sizes, viz 6, 8, 10. and 12 Inches square; their Price from 6 to 20 s. the Hundred. In *Suffex* these kind of Tiles, (or as they call them *Paving-bricks*.) are 9 Inches square, and

and commonly sold at 1 *d.* per Piece, or 8 *s.* per Hundred. many of either of these sort of Tiles will pave any Floor, then

Note, That  $\left\{ \begin{array}{l} 36 \\ 21 \\ 16 \\ 13 \\ 9 \end{array} \right\}$  Tiles of  $\left\{ \begin{array}{l} 6 \\ 8 \\ 9 \\ 10 \\ 12 \end{array} \right\}$  Inches square, will pave a Square Yard.

4. *With Flemish bricks.*] The paving with these Bricks is far neater and stronger than common Bricks: They are of a yellowish Colour, and must be laid in Sand. Earth-brick is 6 Inches and a quarter long. 2 Inches and a half broad, and 1 Inch and a quarter thick.

Now, allowing a quarter of an Inch for the Joynt, then 72 of them will pave a Yard square, but if they be set edge-ways, then to pave a Yard square will require 100 Bricks. These Bricks are usually sold at 2 *s.* the Hundred, and the Price of laying them is 4 *d.* 5 *d.* or 6 *d.* the square Yard.

5. *With Rough, or Rag-stone*] This is the cheapest of all Pavements, and is valu'd from 12 *d.* to 15 *d.* the Yard.

6. *With Free-stone.*] Paving with broad Stone taken out of the Quarries, (commonly call'd Free-stone) and cut into Lengths and Breadths promiscuously, (as they will hold) and in Thickness about 2 or 3 Inches, is usually rated at 6 *d.* 7 *d.* or 8 *d.* the Foot square or 4 *s.* 6 *d.* 5 *s.* 3 *d.* or 6 *s.* the Yard square for Stone and Workmanship. This kind of Paving is laid in common Yards, and Passages before Shop-doors, and Stalls, &c.

But if the Stones be squared all to a size (as sometimes these Stones are cut perfectly square, as Paving-tiles are, but much bigger, as 18, 20, and 24 Inches square, and upwards;) then, as they are neater so they are dearer; as 12 *d.* or 14 *d.* per Foot, or 9 *s.* or 10 *s.* 6 *d.* per Yard. But if the Stones, thus squared and sized be good and well polished, (as they ought to be for Kitchens, Dairies, and near private Places) then they may be worth 15 or 16 *d.* per Foot, or 11 *s.* 3 *d.* or 12 *s.* per Yard square.

7 *With Rigate, or Fire Stone*] This kind of Pavement is good for Chimney fire-hearths, Ovens, Stoves, &c, and is somewhat dearer than common Purbeck-pavement. For the Price of these Stones, see *Fire-stone*, Numb 2.

8 *With Pebble Stones, or Bolders.*] Paving with Pebble-stones laid in Gravel, for Materials and Workmanship, may be worth 15 or 18 *d.* the Yard square

9 *With Marble*] Paving with Marble is of all other the most beautiful, of which there are several sorts; as white, black, and grey: Some Pavements, (as in Foot-paces before Chimneys)

neys) are laid all of one sort, or colour, and in one entire Stone ; others of two Colours laid square, or Chequer-ways, the side of one by the side of the other ; others are laid Arrace-wise, of two Colours, laid Angle to Angle, and this last is the neatest way ; but there may be divers Forms contriv'd to lay them in ; as you may see in several Chancels, in the Choir of *St. Paul's*, and in the *Royal Exchange* in *London*, and divers other Places. This kind of Pavement is valu'd from 2 to 3 s. the Foot square, and upwards, according as 'tis well laid and polish'd. For the Price of Marble, see *Marble*, Numb 5.

10. *Diamond.*] Diamond-pavement, (says *Mr. Wing*) is worth 3 d. or 4 d. per Foot.

11. *Random.*] Random-pavement, (says *Mr. Wing*) at the Quarry, is worth 2 d. half-penny, or 3 d. per Foot.

12. *Of Measuring*] Paving is commonly measur'd by the Yard square. And therefore the Length of any Pavement in Feet and Inches, being multiplied by the Breadth in Feet and Inches, (which, how it is done, see *Cross-multiplication*, Numb. 2.) will produce the Content in Feet ; which being divided by 9 (because 9 Square Feet make a square Yard) will give the Content in Yards requir'd.

### *Pavement.*

See *Paving*.

### *Pediment.*

In French *Fronton*, from the Latin *Frons*, the Forehead, is an Ornament that crowns the *Ordonnances*, finishes the Fronts of Buildings, and serves as a Decoration over Gates, Windows, Niches, &c. It is ordinarily of a Triangular Form ; but sometimes makes an Arch of a Circle *Vitruvius* calls it *Fa-stigium*. Pediments over Doors, are commonly valu'd at so much per Piece, dearer or cheaper, according to their Largeness, Goodness of the Materials, and Curiosity in Workmanship.

### *Pedestal.*

1. *What.*] Is a square Body, with a Base and Cornice, serving as a Foot for the Columns to stand upon ; and having, according to *Vignola*, the third part of the Height of its Column. It is different in different Orders.

2. *Kinds*] There are as many kinds of Pedestals as there are Orders of Columns, viz. 5. The Tuscan, Dorick, Ionick, Corinthian, and Composite. The Height of the Pedestal in each Order ought to be a third part of the whole Column, comprehending the Base and Capital ; and their upper Adjuncts, as Architrave, Frieze, and Cornice a fourth part of the said Pillar. This Rule of singular Use and Facility,



Facility, I find settled by *Jacobo Baroccio*, and I hold him a more credible Author, (as a Man that most intended this piece of Architecture,) than any that vary from him in those Dimensions, says our famous *English Architect*, Sir *Henry Wotton*

Nevertheless, other Architects differ from him in the Height of the Pedestal I shall at present, (for Brevity sake) only give the Description of the several Orders of Pedestals from *Vitruvius*

3. *Tuscan* ] According to *Vitruvius*, the whole Height of the Tuscan Column, comprehending the Architrave, Frieze, and Cornice, is divided into nine Parts, whereof two go to the Height of the Pedestal.

This Pedestal he describes in two different Forms, one of which is plain, having only a Plinth for the Base, and another for the Capital; the Height of each of those Plinths is  $\frac{1}{2}$  of the whole height of the Pedestal; and the Projection of each of these Plinths is  $\frac{1}{3}$  of their height.

In the other fashion'd Pedestal which he describes, he also divides the whole height of the Pedestal into 6 parts, one of which goes to the Base, and one to the Capital.

Again, he divides the Base into two parts, one of which goes to the Plinth below, and the other to the rest of the Base; and this being sub-divided into 4 parts, three of them goes to the Scima-reversa, and the List below it, which

is  $\frac{1}{2}$  a part, and the other to the List above it.

4. *Dorick*.] The whole of this Column, (comprehending the Architrave, Frieze, and Cornice) is by *Vitruvius* divided into 8 parts, whereof two go to the height of the Pedestal, which agrees with *Jacobo Baroccio's* Rule mention'd above, Numb. 2.

This Pedestal is (by *Vitruvius*) also described in two different Forms; in both of which the Base and Capital are each  $\frac{1}{2}$  of the whole height of the Pedestal.

In one of the fashion'd Pedestals, the Base is divided into two parts, whereof one goes to the Plinth below, and the other to the rest of the Base; and this part being sub-divided into two parts, one of them makes the lower *Thorus*; and the other being again sub-divided into three parts, two of them go to the upper *Thorus*, and the other to the List above it.

The Capital of this fashion'd Pedestal is divided into four Parts, whereof the lowermost makes the Astragal, (whose List is  $\frac{1}{3}$  of the whole Astragal) and the other three parts goes to the Cimatium, whereof the List at the Top is one of those Parts.

In the other fashion'd Pedestal the height of the Base is also divided into two parts, whereof the lowermost goes to the Plinth, and the other part being sub-divided into three parts, two of them make the *Thorus*, and the other part the List above it.

The

The whole height of the Capital of this fashion'd Pedestal is divided into five parts, whereof the lowermost goes to the Astragal, (whose List is  $\frac{1}{3}$  of the whole,) the next two parts go to the O.G; the two parts remaining, being sub-divided into three parts, the two lowermost of them go to the Square, and the other to the Cimatium; whose List is  $\frac{1}{3}$  of the whole.

§ *Ionick.*] The whole height of this Column being divided into 14 parts, the height of its Pedestal, (according to *Vitruvius*) is three of those Parts.

This Pedestal he also describes of two different Forms, in each of which, the Base and the Capital are each  $\frac{1}{4}$  of the whole height of the Pedestal.

In one of these fashion'd Pedestals, he divides the height of the Base into three parts, whereof the lowermost goes to the Plinth, the next part goes to the *Scima-reversa*, with its List at top and bottom, which are each  $\frac{1}{2}$  of the whole; the uppermost grand Division being sub-divided into two, the lowermost of them goes to the *Casement*, or *Hollow*, with its List at the top, which is one  $\frac{1}{3}$  of the whole; the other part goes to the Thorus, and its List above it, which List is  $\frac{1}{3}$  of the whole.

The Capital of this fashion'd Pedestal, is divided into two parts, the lowermost of which goes to the *Scima-reversa*, with its List above and below it; whereof the lower List is  $\frac{1}{4}$  of the whole, and the upper

List  $\frac{1}{3}$  of the Remainder. The other grand Division being sub-divided into three parts, the two lowermost of them go to the Square, and the other to the Cimatium, whereof its List is  $\frac{1}{3}$  part of the whole Cimatium.

In the other fashion'd Pedestal, the Base is also divided into three parts, whereof the lowermost goes to the Plinth, the other two grand Divisions being sub-divided into five, the three lowermost of them go to the *Scima-reversa*, and the List under it, which List is  $\frac{1}{2}$  of the whole; the other two Divisions being again sub-divided into three parts, the two lowermost of them go to the Thorus and the remaining part to the List above it.

The Capital of this fashion'd Pedestal is divided into two parts, the lowermost of which being sub-divided into four parts, the lowermost of them goes to the Astragal; (whereof its List is  $\frac{1}{3}$  part,) the other three of those Sub-divisions go to the *Scima-reversa*, and its List above it, which List is  $\frac{1}{2}$  of the whole; the other grand Division being sub-divided into three parts, the two lowermost of them go to the Square, and the other part to the Astragal, whose List is  $\frac{1}{3}$  of the whole.

6. *Corinthian.*] The whole height of this Column being divided into 9 parts, the height of its Pedestal, (according to *Vitruvius*) is two of those parts.

The whole height of the Base being divided into five parts,

parts, the two lowermost of 'em goes to the Plinth; the Remainder being sub-divided into 4 Parts, the lowermost of 'em goes to the Thorus; the two next parts make the Scima-reversa, and the Lift below it, which Lift is  $\frac{1}{3}$  of the whole; the remaining part goes to the Astragal, whereof its Lift is  $\frac{1}{3}$  part.

The height of the Capital is divided into two parts, the lowermost of which being sub-divided into four parts, the lowermost of those go to the O.G, the other three Sub-divisions being again sub-divided into two parts, the lowermost of those goes to the Scotia, or Hollow, and the Lift above it, (which Lift is  $\frac{1}{3}$  part of the whole;) the remaining part goes to the Boul-tin. The other grand Division being sub-divided into three parts, the two lowermost of them go to the Corona, and the remaining part to the Cima-tum, whose Lift is  $\frac{1}{3}$  of the whole.

7. *Composite.*] The whole height of this Column being divided into 13 parts, the height of its Pedestal, (ac-cording to *Vitruvius*) is three of those parts

The Base being divided into 7 parts, two of them go to the Plinth, one to the Tho-rus, two to the Scima-reversa, one to the Scotia, and one to the Astragal;  $\frac{1}{3}$  of the Astra-gal makes the Fillet above the Scotia

The Capital being divided into 7 parts, one of 'em goes to the Astragal, two to the Frieze, one to the Boul-tin and

Lift under it, two to the Corona, and one to the Cima-tium.

### Peers, or Piedroitis.

A kind of square Pillar, part whereof is hid within the Wall; the only thing wherein it differs from a Pilaster; being this, that the latter has a Base and Capital, which the former has not.

2. *Scantlings, or Size.*] I find the Scantlings of *Stone-peers*, set down in an Act of Parlia-ment for the Re-building of the City of *London*, after the late dreadful Fire, (which Scantlings were well consider'd by able Workmen before they were reduced into an Act) to be as follows, viz. In the first sort of Houses, *Corner-peers*, 18 Inches square; *middle*, or *single Peers*, 14 and 12 Inches; *double Peers* between House and House 14 and 18 Inches. In the 2<sup>d</sup>. and 3<sup>d</sup>. sort of Houses, *Corner-peers* 2 Foot 6 Inches square, *middle*, or *single Peers* 18 Inches square, *double Peer*. between House and House, 14 and 19 Inches.

3. *Price*] Peers are some-times measur'd and rated by the Foot running Measure; but they are more commonly rated at so much per piece, dearer or cheaper. according to their Size, Goodness of the Stuff, and Curiosity in Work-manship.

A pair of *Stone-peers* with Seat-arches, 4 or 5 Foot wide, and 14 or 16 Foot high, may be worth 40 or 50 Pounds.

A pair of *Rustick-peers* of Stone, may be worth 10, 12, or 14 Pounds, according to their



their height and substance; Plain-peers, 8 or 10 Pounds; Revailed and Pilaster-peers, from 10 to 14 Pounds a pair.

### *Pentadoron.*

A kind of Bricks so call'd. See *Bricks*, N. III. §. 11.

### *Periptere.*

In the ancient Architecture, is a Building encompass'd round with Columns. The word comes from the Greek, *Peri* about, and *Pteron* a Wing.

### *Perrons.*

Are Steps rais'd before the Doors of great Houses.

### *Persian Order.*

The *Persian Order* is that which has Figures of *Persian Slaves* to support the Entablement, instead of Columns, as the *Caryatick Order* has the Figures of Women serving for the same Purpose. The former Columns are usually like robust Men, with long Beards; and such Figures are much fitter to represent an unhappy Slavery, than those of Women. The Character of Slavery is express'd in these Figures, either by tying their Hands before, or else behind their Backs. Columns of this kind may be very properly used in a Gallery of Arms, &c. Princes Palaces; in which case they may be made Gigantick, and their Entablature Dorick.

We wou'd not, however, insinuate, that the Figures of Men are always Marks of Slavery: They are frequently

used as Symbols of Vertues and Vices; of Joy, Strength, Valour, and even of fabulous Deities: As when they are made in the Figure of *Hercules* to signify Strength, of *Mars*, to shew Valour, of *Mercury* to represent Dexterity, and of *Fauns* or *Satyrs*, to inspire Mirths and Jollity.

### *Piazza's.*

See *Architrave*, N. 2.

### *Piedroit.*

In *Architecture* is a square Pillar that is partly within the Wall. See *Peer*.

### *Pillar.*

Is a kind of round Column disengaged from any Wall, and made without any Proportion; being always either too massive or too slender: Such are the Pillars which support the *Vaults* of *Gothick-Buildings*. In *Latin* they are called *Pile*.

### *Pilasters.*

1. *What.*] In *Architecture* are a kind of half Columns (standing against a Wall) with Base and Capital, as Columns have; but differing from Columns in this, that Pilasters are square, but Columns are round.

2. *Of their Size, and Situation.*] Pilasters must not, (says Sir Henry Wotton) be too tall and slender, least they resemble Pillars; nor too dwarfish and gross, least they imitate Piles, or Peers of Bridges: Smoothness.

ness does not so naturally become them as a Rustick Superficies; for they aim more at State and Strength, than Elegancy.

In private Buildings they ought not to be narrower than one third, nor broader than two thirds of the Vacuity, or Inter-space between Pilaster and Pilaster: But to those that stand at the Corners, may be allow'd a little more Latitude by Discretion for strength of the Angles.

In Theatres, and Amphitheatres, and such weighty Works, *Palladio* observes them to have been as broad as the half, and now and then as the whole Vacuity, or Inter-space. He noteth likewise, (and others consent with him.) That their true Proportion should be an exact Square; but (for lessening of Expence, and enlarging of Room) they are commonly made narrower in Flank than in Front.

Their principal Grace consists in half, or whole Pillars apply'd to 'em; in which case it is well noted by Authors, that the Columns may be allow'd somewhat above their ordinary length, because they lean to so good Supporters. And thus much shall suffice at the present, touching the size and Situation of Pilasters, which is a cheap, a strong, and a noble kind of Structure.

3. *Price*] These are sometimes measur'd and rated by the Foot running Measure; but they are more commonly valu'd at so much *per piece*,

according to the size, goodness of the Materials, and Curiosity in Workmanship.

### *Pitch.*

By this Term Architects understand the Angle a Gable-end (and consequently the whole Roof of a Building) is set to. If the length of each Rafter be  $\frac{3}{4}$  of the breadth of the Building, then that Roof is said to be *true Pitch*; if the Rafters are longer, 'tis said to be a *high*, or *sharp pitch'd* Roof; if shorter, (which it seldom is,) then 'tis said to be a *low*, or *flat pitch'd* Roof.

### *Pitching.*

The same as *Paving*. See *Paving*.

### *Pins for Tiles.*

What they are every one knows; they ought to be made of Heart-oak, and to every 1000 of Tiles is usually allow'd two Gallons of Tile-pins, from 3 *d* to 6 *d*. the Gallon, says Mr. *Leybourn*. I know not how he reckons, but I am sure 1000 of Tiles requires but 1000 Pins, which some Workmen in *Sussex* tell me they reckon but 2 *d*. or 3 *d*. for they tell me they sell their Pins for 6 *d*. *per Gallon*; and that they use about a Gallon of Pins to a Square and a half of Healing.

*Pine.*

*Pinning.*

*Of Tiles*] Some Workmen in *Sussex* tell me, That they commonly reckon 8 *d.* per Thousand, for pinning of Tiles, and finding Pins. But for the Workmanship only 6 *d.* per Thousand.

*Pilaster-bricks.*

See *Bricks*, N. 111. §. 13.

*Pipes of Lead.*

See *Lead*, N. 9.

*Place-bricks.*

See *Bricks*, N. 111. §. 12.

*Plain cornice.*

See *Cornice*.

*Plin-tiles.*

See *Tiles*, N. 111.

*Planchier.*

The Ornament to which the Cornice is fasten'd.

*Plastering.*

1. *Of Walls.*] Some Masons in *Sussex* tell me, That for Lathing and Plastering of Walls with Lome on both sides, they have 3 *d.* per Yard; but if it be done with white Lime, and Hair-mortar on both sides, then they have 4 *d.* per Yard.

I am informed, That at *Tunbridge-wells* the Masons will do

Plastering of Walls (where they plaster over all the Timber) and Ceilings for 2 *s.* 10 *d.* per Square. I know a Gentleman that told me, He had such Work done for 2 *s.* 6 *d.* per Square.

2. *Of Ceilings.*] For Ceilings, our Masons in *Sussex*, have (for Lathing, Plastering, and Finishing) 4 *d.* per Yard. In some Countries they make their Ceilings with Reed, Lime and Hair; for which the Workmanship is worth 3 *d.* per Yard: But if the Workman find all Materials, 'tis worth 5 *d.* or 6 *d.* per Yard

3. *With rough Mortar, or Rough-cast.*] In some parts of *Kent* they commonly *Rough-cast*, (as they call it) upon old Lome-walls, that is, they give them one Coat (upon the Lome) of *Rough-mortar*, or *Rough cast*, as they call it, tho' it be commonly struck smooth like Lime and Hair. For this Work they have 3 half-pence per Yard, only Workmanship: But if the Wall be new and Lathed, and Plaster'd with Lome on both sides, and a Coat of *Rough-mortar* on the out-side, then they have 4 *d.* per Yard only Workmanship. But if the *Rough-casting* be wrought in Flourishes, then they have 8 *d.* per Yard, only Workmanship. But if the Workman find all Materials, 'tis worth from 1 *s.* to 3 *s.* per Yard, according to the variety and goodness of the Work.

4. *On Laths in imitation of Brick*] I know a House that is plaster'd in imitation of Brick-work, the Mortar was made of Powder of Bricks, sharp Sand, Lime,



Lime, and some Red-oker. This House has been done this 20 Years, and yet looks very well, and passes for a Brick-house with common Passengers, tho' it be only Timber plaister'd over.

Some Workmen tell me, That they have 1 s. per Yard for such Work, only Workmanship.

5. Of Floors.] Plaister-Floors running, (says Mr. Wing) the Workman finding all, is worth 1 s. 4 d. per Yard, but the working part only is worth 4 d. 5 d. or 6 d. per Yard. Plaister at the Pits may be had for 4 s. or 4 s. 6 d. per Load, viz. 40 C. weight, which will do about 40 Yards of Flooring.

6. Of White-washing.] White-washing with Size upon plaister'd Walls, is commonly reckon'd at 2 d. per Yard.

7. Of Measuring.] This kind of Work is commonly done by the Yard square, as Paving, which see, Numb. 12. But Note, That in measuring of Partitions, if the Workman find Materials, the Doors and Windows are measur'd by themselves, and deducted from the whole; as is also  $\frac{1}{2}$  part (of the rest) for the Quarters in rendring Work: But if the Workman do not find Materials, there is commonly no Allowance made for them, the Trouble of cutting and fitting the Laths being equivalent to the void Space left for the Doors and Windows. Neither (in Case of Workmanship only) is there to be any Allowance made (in rendring) for the Quarters, Braces, or Inter-

ties, the Work being as much as (if not more than) if it were all plain. See more of Plaistering, in the word *Par-getting*.

### Platebands.

The Lifts, or Fillets between thg Fluteings of the Ionick, Corinthian, and Composite Columns. They are (each) in breadth a quarter of the Flute. *Platebands* are also a square Mould set at the end of an Architrave of the Dorick Order. Plat-band, Perrault says, is a square Moulding, having less Projecture than Height. Such are the Faces of an Architrave, and the Plat-band of the Modillions of a Cornice. The Plat-band in *Vitruvius*, is signified by the words *Fascia*, *Tenia* and *Corisa*.

### Platform.

1. *What*] This word in Architecture is sometimes us'd to signifie the Ichnography, or Draught of the Ground-plot of a House; but more commonly for a broad, smooth, and open Walk upon the top of any Building. *Platform* is also a Row of Beams which support the Timber work of any Roof, and lie on the top of a VVall, where the Entablature ought to be raised.

2. *Of Covering with Lead*] See *Lead*, N. 7.

### Plat-fend.

A French word for the Ceiling or Roof of a Chamber, or other Room, &c. The same as *Soffit*

## *Plastique, or Plastick-Art.*

The *Plastique-art*, is a Branch of Architecture that is not only comprehended under Sculpture, but is indeed very Sculpture it self; but with this difference; that the Plaisterer (by his *Plastique art*) makes Figures by Addition, but the Carver by Subtraction; whereupon *Michael Angelo* was wont to say, (somewhat pleasantly) That Sculpture was nothing but a Purgation of Superfluities: For take away from a piece of Wood, or Stone, all that is superfluous, and the remainder is the intended Figure.

Of this *Plastique-Art*, the chief use with us is in the graceful fretting of Roofs, (commonly known amongst us by the Name of Fret-work;) but the *Italians* apply it to the Mantlings of Chimneys with great Figures; a cheap piece of Magnificence, and as durable almost within Doors, as harder Forms in the Weather.

## *Plinth.*

Is derived from the Greek, *Plinthos*, (a square Brick) and is, in Architecture, a square Piece or Table, under the Mouldings of the Bases of Columns and Pedestals.

## *Plumbery.*

An Art belonging to Architecture, it being the Art of working in Lead.

## *Poitral.*

See *Architrave*.

## *Porphyry.*

A fine reddish Marble, streaked with divers Colours. *Pliny*, (in *Hist. Nat. Lib. 36. Cap. 7.*) says, This kind of Marble comes out of *Egypt*, where there are large Quarries of it.

## *Portico.*

See *Architrave*, N. 2.

## *Portland-stone.*

A Stone-cutter in *London*, tells me, That they usually sell Slabs of *Portland stone*, (ready polished for Chimney-foot-paces) for 1 s. 8 d. per Foot superficial. 'Tis a Stone much us'd in Building, and much softer and whiter than *Furbeck*.

## *Port-nails.*

See *Nails*, N. 12.

## *Portal.*

An ancient Term in Architecture, I say an ancient Term, for the thing signifi'd by it is grown out of fashion; it was us'd to signifie a little square corner of a Room, shifted off from the rest of the Room by the Wainscot. The word seems to come from the *French*, *Portail*, a Gate, or Entrance; because through it they enter into the Room.

*Portail?*

*Portail.*

The Decoration of the Face or Front of a Church, call'd also Frontispiece. There are some Gothick, as that of *Westminster Abbey*, &c. and others *Antique*, as in many of the newest Churches. The word also, upon other occasions, does signifie the principal Gate of a Palace, Castle, Pleasure-house and the like.

*Portico.*

A kind of Gallery rais'd upon Arches, where People walk under Shelter. It has sometimes a *Soffit*, or Ceiling, but is more commonly vaulted.

*Posts.*

1. *What* ] Pretty big pieces of Timber, standing upright in a House, &c.

2. *Principal* ] In Architecture, are the Corner-posts of a House, viz.

3. *Prick posts* ] The Posts that are Fram'd into Bressummers, between principal Posts, for the strengthening the Carcass of the House.

4. *Of Preserving* ] An ingenious Gentleman, one Mr. *Walter Burrel, Esq;* of *Cuckfield* in *Sussex*, deceased, used to burn (to a Coal on the out-side) the ends of all the Posts which he set in the Ground; whereby they will continue a long time without rotting, which otherwise would suddenly decay.

*Post and Rail.*

See *Fencing*, N. 2. and *Paling*, N. 1, 2.

*Pound-nails.*

See *Nails*, N. 13.

*Prick-posts.*

See *Posts*, N. 3.

*Priming.*

See *Painting*, N. 1.

*Principal.*

1. *Posts.* ] See *Posts*, N. 2.

2. *Rafters* ] See *Rafters*.

*Prices.*

Of Work and Materials, see the Particulars, that you would know the Price of, in their proper Place of the Alphabet.

*Profile.*

In Architecture is a Draught representing the Breadth, Depth, and Height of a Building, or Fortification, but not the Length; which properly belongs to a *Plan* or *Ground-plot*, so that it is in a manner the same with a Prospect of a Place or Building view'd sideways, and express'd according to the Rules of Perspective. Also, but I think improperly, 'tis taken for the *Contour*, or Out-line of any Member in Architecture, as that of a *Base*, a *Cornice*. or the like.



*Pseudo-Diptere.*

See *Diptere*.

*Pudlays.*

Pieces of Stuff to do the Office of Leavers, or Hand-spikes.

*Pulvinata.*

A Frieze swelling like a Pillow.

*Punchins.*

1. *What* ] Short pieces of Timber placed under some considerable weight to support it. They commonly stand (upright) between the Posts; they are shorter (and slighter) than either Principal posts, or Prick-posts. Those that stand on each side of a Door, are call'd *Door-punchins*.

2. *Price*.] Carpenters commonly reckon 1 d. or three half-pence per Foot for putting in of new Punchins.

*Purlins.*

1. *What* ] Those pieces of Timber that lie across the Rafter, on the inside, to keep them from sinking in in the middle of their length.

2. *Size* ] By the ACT of Rebuilding the City of London all *Purlins* in length from 15 Foot 6 Inches, to 18 Foot 6 Inches, ought to be in their Square 9 Inches, and 8 Inches. And all in length from 18 Foot 6 Inches, to 21 Foot 6 Inches, ought to be in their Square 12 Inches, and 9 Inches.

*Purbeck-stone.*

1. *What* ] 'Tis a hard greyish Stone, almost like *Suffex Petties*. They are us'd for Pavements.

2. *Price*.] A Stone-cutter in London tells me, That they commonly sell Purbeck-slabs, (ready polished for Chimney-foot-paces) for 2 s per Foot. And Purbeck paveing of promiscuous Sizes, only hew'd and squar'd, they sell for 7 d. per Foot. Also *Mitchels* they value at about 1 s. 10 d. per Foot. See *Mitchels*.

*Putlogs.*

Pieces of Timber, or short Poles, (about 7 Foot long,) us'd by Mafons in Building of Scaffolds to work on. The Putlogs are these pieces which lie horizontal to the Building, one end lying into it, and the other end resting on the *Ledgers*; which are those pieces that lie parallel to the side of the Building.

*Pycnostyle.*

This Term is us'd when the Columns are ranged so close to one another, that the *Intercolumnation* does not exceed a Diameter and a half.

*Pyramid.*

From the Greek, *Pyr*, Fire or Flame, this being pointed like that. It is a solid Body, whose Base is either Square, Triangular, or Polygonous, and which from

from that *Base* diminishes continually to its *Vertex* or *Top*.

*Pyling.*

The Ground for Foundations, See *Foundations*, N. 2. §. 5.

*Quarry.*

1. *OF Stone* ] a Place whence Stones are dug out.
2. *Of Glass* ] A piece of Glass cut in a Diamond-form. Quarries of Glass are of two Kinds, *viz.* square, and long; and these again are of different sizes, as 8's, 10's, 12's, 15's, 18's, and 20's, [that is, 8 Quarries of 8's make a Foot of Glass, and so does 10 Quarries of 10's, 12 of 12's, &c] But all Quarries, (of what size soever) are cut of one sort of Angle for the Square Quarries, and another for the long Quarries: The Acute Angle of the square Quarries being 77 Degrees, and 19 Minutes; and the Acute Angle of the long Quarries 67 Degrees, and 22 Minutes. See more, *Glasling*, N.

*Quarters.*

In Architecture, all those slight upright pieces between the Punchins and Posts, (which serve to Lath upon) are call'd *Quarters*. They are of two kinds, *single* and *double*: Single *Quarters* are sawn Stuff, two Inches thick, and four Inches broad. The double *Quarters* are sawn to four Inches square.

'Tis a Rule in Architecture, that no *Quarters* be placed at greater distance than 14 Inches.

*Quartering.*

In Architecture, signifies the putting in of *Quarters*. Sometimes 'tis us'd to signify the *Quarters* themselves.

*Quarter-head.*

See *Brads*, N. 6, 7.

*Quarter-round.*

By this Name the Workmen call any *Moulding* whose *Contour* is a Circle, or approaching to a Circle; using this Term where ever the Architects use that of Egg, or *Ovolo*. See *Echinus*.

*Quirk,*

In Architecture, signifies a piece taken out of any regular Ground-plot, or Floor. As if the Ground-plot were a Square, or an Oblong, and a piece be taken out of one corner of it, for a Court, or Yard, that piece so taken out is call'd a *Quirk*.

*Quins, or Quoins.*

The corners of Brick, or Stone walls. Also the Stones in the corners of Brick-Buildings. If these Stones stick without the Brick-work, (their edges being cypher'd off) they are call'd *Rustick-quoins*. The *Rustick-quoins*, at two Feet, one Face, and one Foot the other, are valu'd from 1 s. to

*per Quoin, Stone and Workmanship.*

*Quadrels.*

A sort of artificial Stones, (so call'd from their Form, they being square) made of a chalky, whitish and pliable Earth, and dry'd in the Shade They were two Years in drying, and were much us'd by ancient *Italian Architects.*

*Rafters.*

**1. WHAT]** Rafters are those pieces of Tim-

ber, which (standing by pairs on the Reson,) meet in an Angle at the top, and compose the Roof of a Building.

2. *Scantling, or Size*] In an ACT of Parliament for Re-building the City of London, the following *Scantlings*, (which were well consulted by able Workmen, before they were reduced to an Act) are set down, as fitted for all Edifices, great or small, *viz.*

3. *Distance*] 'Tis a Rule in Architecture, that no Rafters be laid at greater distance from each other than twelve Inches.

Principal Rafters, in length	from	to	must be broad at the		and thick.
			Foot.	Top.	
	F. In	F. In	Inches.	Inches.	Inches.
	12. 6	14. 6	8	5	6
	14. 6	18. 6	9	7	7
	18. 6	21. 6	10	8	8
	21. 6	24. 6	12	9	8½
	24. 6	26. 6	13	9	9

Single Rafters in length  $\left\{ \begin{array}{l} 6 \text{ Foot } 6 \text{ Inches,} \\ 8 \text{ Foot,} \\ 9 \text{ Foot,} \end{array} \right\}$  must

have in their Square  $\left\{ \begin{array}{l} 4, \text{ and } 3 \\ 4 \frac{1}{2}, \text{ and } 3 \frac{3}{4} \\ 5, \text{ and } 4 \end{array} \right\}$  Inches.



*Rag-stone.*

See *Paving*, N. 5.

*Rails,*

In Architecture, are us'd in various Senses; as for those pieces that lie Horizontally between the Pannels of Wainscot, and over, and under them. Also for those pieces that lie over, and under Ballisters, in Balconies, Stairs-cases, &c. Also for those pieces of Timber that lie Horizontally from Post to Post, in Fencing with Pales, or without.

*Rails and Ballisters.*

1. *Price of making.*] Mr. Wing tells us, That Rails and Ballisters on Balconies, or about the Platform of great Houses, are worth (only Workmanship) 4 s. per Yard, running Measure.

2. *Painted, of Measuring*] See *Painting*, N. 2.

*Raiser,*

A Board lie on edge under the fore-side of a Step.

*Raising-pieces.*

Are pieces that lie under the Beams, upon Brick or Timber by the side of the House.

*Random-pavement.*

See *Paving*, N. 11.

*Range.*

The side of any Work that runs straight, without breaking into Angles, is said to *Range*, or *Run-range*: Thus the Rails and Pannels of one straight side of Wainscotting, is said to *Run-range*. See more in the Note in *Glazing*, N. 3. §. 2.

*Redsear.*

See *Iron*, N. 2.

*Regule,*

As *Orlo*.

*Rendering:*

See *Pargeting*, N. 2.

*Repository.*

A Store-house, or Place to keep things in; more peculiarly by Architects 'tis us'd to signifie such Places as are built for the laying up of Rarities, either in Painting, or other Arts.

*Return.*

The Side that falls away from the fore-side of any straight Work, is called the *Return*.

*Reul.*

See *Parapet*.

*Ribbing-nails.*

See *Nails*, N. 14.

*Rides,*

Or Hinges for Doors, &c. are commonly sold for 4 *d* per Pound. See Iron, Numb. 4.

*Ridge.*

The meeting of the Rafters on the top of the House, is call'd the Ridge.

*Ridge-tiles.*

See Tiles, Num. 4.

*Rigate-stones.*

See Fire-stone.

*Rondel.*

See Capital, Numb. 2.

*Roofing.*

1. Price ] Roofing in ordinary Buildings is worth 7 or 8 *s.* per Square, but in great Buildings, 10 or 11 *s.* per Square. See Pl. Framing, Numb. 5.

2. Of Measuring ] Roofing is commonly measur'd by the Square, as Flooring. See Flooring, Numb. 5.

*Roof.*

The Covering of a House; but the Word is us'd in Carpentry, for the Timber-work of the Covering.

*Rose-nails.*

See Nails, Numb. 15.

*Rose.*

*Rose* is an Ornament cut in the Spaces which are between the *Modillions* under the Plat-fonds of Cornices, and in the middle of each Face of the *Abacus*, in the *Corinthian* and *Composite* Capitals.

*Rother-nails.*

See Nails, Numb. 16.

*Rough-Stone.*

As Rag Stone.

*Rough-casting.*

See Plaistering Numb. 3.

*Rough-mortar.*

In many Places of *Kent*, where they rough-cast their Houses, they make their Mortar, (which they call *Rough-mortar*) of a sort of Sand, which when 'tis mixt with the *Lime*, makes it look as red as Blood; but to these they put Powder of *Ginders* which changes it to a kind of blueish Colour; See Pl. Mortar. Num. 11.

*Round-beads.*

See Nails, Numb. 17.

*Rustick.*

A Manner of Building, rather in Imitation of Nature, than according to the Rules of Art. The Columns are encompassed

compassed with frequent  
Cinctures.

*Rustick-peers.*

See *Peers*, Numb. 3.

*Rustick-Quoins.*

See *Quoins*.

*Sagitta.*

**I**N Italian, *Saetta* (an Arrow) signifies what we call the Key piece of an Arch.

*Salon.*

Is a kind of Hall, in the Middle of a House, or at the head of a Gallery, or a large Apartment, which ought to have a Simmetry on all its Sides; and as its Height usually takes in two *Stories* with two Rows of Windows, the bottom of its Plat-fond ought to be arch'd; as is practis'd in some of the Palaces in *Italy*.

*Samel, or Sandel Bricks.*

See *Bricks*, Num. III. §. 14

*Sand.*

**I. Kinds.]** What it is, every one knows. Its Use (in *Architecture*) is in making of Mortar. There are three Sorts of Sand, *viz* Pit-sand. River-sand, and Sea-sand: Pit sand is of all the best, and of all Pit-sand that which is whitest, is (by

long Experience found to be) the worst. Of all River-sand, that which is found in the Falls of Water is the best, because it is most purged. The Sea-sand is the worst of all.

The Pit-sand, because it is fat and tough, is therefore us'd in Walls and Vaults. The River-sand is very good for rough-casting of Walls.

All Sand is good in its kind, if being squeez'd and handl'd it crackles; and if being put upon a white Cloath, it neither stains nor makes it foul.

That Sand is bad, which mingl'd with Water, makes it dirty and muddy, and which has been a long time in the Air; because it will retain much Earth and rotten Humour: And therefore some Masons will wash their Sand before they use it.

2. *Price.]* Sand, at *London*, is commonly sold for 3 s per Load, 36 Bushels to the Load. In some parts of *Sussex* 'tis sold for 1 s. 6 d. per Load, at 12 Bushels to the Load. In other parts of *Sussex* 'tis sold at 2 s. 6 d. per Load, at 18 Bushels to the Load.

*Saffita, or rather Soffita,*  
or *Soffit.*

An *Italian* Word (from *Subfixum*, in *Latin*) a sort of Cieling. In ordinary Buildings, it is taken for the Boards over the tops of Windows, opposite to the Window-boards at the bottom. In great Edifices it signifies the Ceiling or Wainscot of any Apartment form'd by Cross-Beams, or flying



flying Cornices, and having the square Pannels of its Compartments enrich'd with Sculpture, Painting and Gilding, as we may observe in the Basiliques and Palaces of *Italy*. This is what the Latins mean by *Lacunar*, and *Laquear*, with only this Difference, That *Lacunar* signifies any Soffit, whose Pannels are call'd *Lacus*, *Lakes*; and *Laquear* is used to express that form'd by Compartments, inter-mingled with Plat-bands, in manner of a Noose, in Latin *Laqueus*. The bottom of the Drip is by some call'd Soffit.

### Sash-lights.

See *Painting*, Num. 12.

### Sash frames.

See *Painting*, Num. 13.

### Sawyers-work.

See ———

### Sawing.

1. By the Hundred.] Sawyers do most commonly work by

the Hundred, that is by the Hundred Superficial Feet, (how measur'd. see Numb. 12.) For which they have various Prices, not only in different Places, but also for different kinds of Timber; as may be seen in the following Numbers.

2. Of Oak.] The sawing of Oak is in some Places 2 s. 8 d. in others 3 s. in others 3 s. 6 d. the Hundred.

3. Of Elm.] The sawing of Elm, is in some Places 3 s. the Hundred, commonly about the Price of Oak.

4. Of Ash, and Beech.] The sawing of Ash, and Beech, is generally worth 6 d. in the Hundred more than Oak, or Elm. In some Places 'tis 3 s. in others 3 s. 6 d. in others 4 s. per Hundred.

5. By the Load.] Sawyers do sometimes work by the Load, viz. So much for cutting out a Load, (or 50 Foot) of Timber; the Price various, according as what the Timber is cut to. But the common Price is for Ship-planks of two Inches thick, 10 s. the Load. And for Building

Timber	{	large Size, 6 s. or 6 s. 6 d.	} the Load:
		large Size 7 s.	
		small Size, 7 s. 6 d. or 8 s.	

An old experienced Sawyer tells me, That *sawing by the Load* is commonly thus agreed for, viz. They have all their Sizes set down which they are to cut; and they will cut none smaller, neither will they slab any, unless they are paid

for it by Measure, over and above what they are to have by the Load. They never cut any thing less than Rafter, which are about four and five Inches, and which is generally the smallest Timber in a Frame, except Quarters, and Window-

Window-stuff, which they generally cut by the Hundred. If the Carpenter will have any Pieces clear'd by Slabbing, after they have cut them off to their Size, they will (also) be paid by Measure for it.

They generally prick off their Sizes from the outer Edges, and what is left in the middle they lay by till they can fit it to some other Size, when it is wanted.

This Sawyer tells me, That the Carpenter has a great deal of hewing of out-side pieces, when 'tis saw'd by the Load: He also says, That sawing by the Load is commonly good Work for the Sawyer. The Truth is, (as he confesses) it wasteth a great deal of Timber, it being hew'd away to Chucks.

The lowest Rate that any (about us in *Suffex*) is cut for by the Load is 6 s. and then it must be very large Scantlings, or else they will have 7 s. which indeed is the common Price for sawing a good large siz'd Timber-frame. But if the Timber-frame be small and slight, as they commonly build at *Tunbridge-wells* they will have 7 s. 6 d. or 8 s. per Load.

6. Of *Ship-planks*.] An old experienced Sawyer tells me, That they sometimes cut Ship-planks by the Load for 10 s. per Load: But then the Size of their Planks are (if I remember right) two Inches in Thickness.

Sometimes (he says) they saw them by the Hundred, and then they have 3 s. per

Hundred, and 2 d. for petting of every Log. But if there be nothing allow'd for petting the Logs, then they reckon so many Carves as there are Pieces, which is one Carf more than there really is.

He also says, that they commonly cut Planks from  $1\frac{1}{2}$  Inch, to three Inches thick; but they are never paid for breaking Work, till it comes to a two Foot Carf.

7. Of *Compass-work*.] For sawing of Compass-work, (as Mill-wheels, Furnace-wheels, Forge-wheels, Rafters for Compass-roofs, &c.) Some Sawyers tell me they have 2 d. per Foot.

8. Of *Bevil-work*.] Some Sawyers tell me, that in sawing of Bevil-work, (as Hips, and Sleepers, &c. Posts, &c. in Bevil-frames; as also Posts or Punchins in Polygonal Turrets, &c.) they work by the hundred, but they always reckon a Carf and half; that is, they reckon  $\frac{1}{2}$  as many more Feet of Sawing as there is.

9. Of *Furnace-bellows*.] These they cut by the Foot, Lineal Measure, at 1 s. per Foot.

10. *Forge-bellows*.] These they cut by the Foot Lineal Measure, at 4 d. or 6 d. per Foot.

11. Of *Ground-guts*.] These they also cut by the Foot, Lineal Measure; if small, for 1 d. per Foot, but if 15 Inches deep, then  $1\frac{1}{2}$  d. if 18 Inches, 2 d. per Foot.

12. Of *Measuring*.] Sawyers, (when they work by Measure,) generally Measure their Work by the Foot Superficial.

There

There is no difficulty in taking the Dimensions ; for they reckon the Depth of the Carf for the Breadth ; and the length for the length. The breadth, (or depth) and length of a Carf being taken, and multiply'd together, (as is taught in *Cross-multiplication*, Num. 2.) gives the Area, or superficial Content of that Carf.

Having thus found the Number of Feet in one Carf ; multiply it by the Number of Carves of the same depth and length ; and so you have the Area of them all.

*Note*, (1.) That having thus cast up their whole Work in Feet ; they are paid for it by the *Hundred*, [that is 100 Feet] at various Rates, of which see above, Num. 1. 2. 3. and 4.

(2.) That if the Carf be but 6 Inches (or be less than 6 Inches) in depth, they have a Custom to be paid for Carf and half ; (as they phrase it) that is, for half so much more as it comes to by Measure. The reason they urge for this Custom is, their Trouble in often linding, and removing their Timbers.

3. That for *Breaking-work*, [that is cutting a Log through the middle,] and *Slabbing*, [that is, cutting off the out-side Pieces,] if the Carf be more than 12, or 13 Inches deep, they are paid by the Foot, Lineal Measure, at various

Prizes, according to the different Depth of the Carf, *viz.* at

Inches deep.		
15	1d.	} per Foot.
18	1 $\frac{1}{2}$	
20	2.	
22	2 $\frac{1}{2}$	
24	3	
26	3 $\frac{1}{2}$	
28	4	
30	4 $\frac{1}{2}$	
32	5.	
34	5 $\frac{1}{2}$	
36	6	

(4) That in some Places 'tis the Custom to allow the Sawyer but one *Breaking-carf* in a Log, tho' there be never so many deep Carves in the Log : But some Sawyers claim it as a Custom to have half *Breaking-work*, and the other half *Hundred-work* ; as if they have four deep Carves, then they will have two *Breaking-works*, and the other two *Hundred-work*.

### Scantling.

The Size that any Timber is design'd to be cut to.

### Scenography.

(From the Greek *Skene*, a Tent, or Tabernacle, and *Grapho*, to waite or describe,) is a Model, or Description of the Front and Sides of a House, or the Art of rightly contriving Draughts in Architecture.

*Schzamp.*



*Scheam.*

See *Arches*, Numb. 6.

*Scima,*

As *Cima*.

*Scima-tum; tium.*

As *Cimatum*.

*Scima-recta.*

See *Capital*, Numb. 3.

*Scima-reversa.*

An O-G, with the hollow downwards, See O-G.

*Scotia.*

A Member of Architecture. 'Tis a hollow like a Semicircle. It is particularly plac'd in the Bases of Columns between the Thorus and the Astragal, and sometimes 'tis put under the Drip, in the Cornice of the Dorick Order. *Scotia*, from the Greek *Skotos*, Darkness, signifies, says M. Perrault, a hollow, *obscure* Moulding, between the *Tores* of the Base of a Column. It is also call'd. by some, the Concave Member, and by others *Trochilus*, from the Greek *Trochilos*, a Pulley, which it resembles, as to Form.

*Scribe,*

A Term us'd by Joiners, when they are to fit one side of a piece of Stuff against the

side of some other piece of Stuff, and the side of the Piece they are to fit it to is not regular: To make these two pieces of Stuff joyn close together all the way, they scribe it, (as they phrase it) thus; they lay the piece of Stuff (they intend to scribe) close against the other piece of Stuff they intend to scribe to, and open their Compasses to the widest Distance, these two Pieces of Stuff bear off each other: Then (the Compasses moving stiff in their Joynt, they bear the Point of one of their Shanks against the side they intend to scribe to, and with the Point of the other Shank they draw a Line upon the Stuff to be scribed; thus the Points of the Compasses remaining unmoved, and your Hand carried evenly along by the side of the piece to be scribed to, that Line scribed upon the piece intended to be scribed, shall be parallel to the irregular side intended to be scribed to: And if you work away your Stuff exactly to that Line, when those Pieces are put together, they shall seem a Joynt.

*Sculpture,*

The Art of carving in Wood, or Stone. See *Plastick Art*.

*Scupper nails.*

See *Nails*. Numb. 18.

*Seasoning of Timber.*

See *Timber*, Num. IV.

*SEWER,*

*Sewers,*

In *Architecture*, are Conduits or Conveyances for the Soil-lage and Filth of a House; which, how base soever they are in Use, yet for the Health of the Inhabitants, they are as necessary and considerable, as (perhaps) any thing about a House.

Concerning these, I find in our Authors, this Counsel, That Art should imitate Nature in those ignoble Conveyances, and separate them from sight, (where there wants a running Water) into the most remote, and lowest, and thickest part of the Foundation, with secret Vents passing up through the Walls (like a Tunnel) to the wide Air aloft; which all *Italian* Artizans commend for the discharge of noisome Vapours, though elsewhere, (to my Knowledge) little practis'd.

*Sells.*

1. *What.*] *Sells* in *Architecture* are of two kinds, viz, *Groundsells*, [which are the lowest pieces of Timber in a Timber-building, on which the whole Superstructure is erected,] and *Window sells*, (sometimes call'd *Window-foils*,) which are the bottom pieces in a Window-frame

2. *The Price of putting in*] The putting in of *Groundsells* in a House, is commonly rated at 3 *d.* or 4 *d.* per Foot, only Workmanship.

*Setting.*

See *Pitching*.

*Setting of Fronts.*

See *Fronts*, Numb. 2.

*Shaky, or Shaken.*

Such Stuff as is crack'd, either with the Heat of the Sun, or the Drought of the Wind, is call'd *shaky*, or *shaken* Stuff.

*Sharp-nails.*

See *Nails*, Num. 19.

*Sheathing-nails.*

See *Nails*, Num. 20.

*Sheet-lead.*

See *Lead*, Num. 3, 4, 5, 6, 7.

*Slides.*

The same as ———

*Shingles.*

1. *What.*] These are small pieces of Wood, or quarter'd Oaken-boards, saw'd to a certain Scantling; but they are more usually cleft to about an Inch thick at one end, and made like Wedges about 4 or 5 Inches broad, and 8 or 9, (and in some places 12) Inches long. They are us'd to cover Houses with, (but more commonly Churches and Steeples) instead of Tiles, or Slates.

This

This kind of Covering is very chargeable, and seldom us'd but in covering the Roofs of Churches, and Pyramidal Steeples. Nevertheless, where Tiles are scarce, and you would have your House but lightly cover'd; Shingles are to be prefer'd before Thatch; and if they are made of good Oak, and cleft out, (not saw'd) and then well season'd in the Water and Sun, they become a fure light, and durable Covering.

2. *Price of.*] Some Workmen tell me, That Shingles are sometimes sold for 20 s. per Thousand, but then are very bad Ware; for if they are good they are worth 30 s. per Thousand; nay, they tell me, They have known 40 s. per Thousand given for Shingles to lay upon Steeples; for those that lie so high, and hang so perpendicular, ought to be of the best sort.

3. *Price of Cleaving and Making.*] Several Workmen tell me, That the common price of Cleaving and making of Shingles, is 10 s. per Thousand.

4. *How many made of a Tun of Timber.*] Some Workmen tell me, That a Tun of Timber will make 3000 Shingles.

5. *Of laying on.*] For covering with these, the Building must be first well cover'd all over with Boards; which being done, the Shingles are fasten'd to those Boards; with 4 d. 5 d. or 6 d. Nails, in every Course, at a certain Gage, viz. At 3  $\frac{1}{2}$  Inches, or 4 Inches, from under one another; for they commonly make 3

Waters, (as they phrase it,) that is, they commonly hang 3 Shingles in height, in the length of one; so that if the Shingles are 12 Inches long, they are laid at 4 Inches Gage.

In breaking of Joynt, they do not observe to make one Joint over the middle of the Shingle below; but they sometimes break Joynt an Inch, an Inch and a half, ore two Inches, according to the breadth of the Shangles; for they (especially if they are cleft) are not all exactly of a size.

6. *Price of laying on.*] For laying them on upon Spire-steeple, where the Work is high and troublesome, they have (commonly) 20 s. per Thousand; but on low Work, (as upon Houses and the like,) they will cleave, and make, and lay them on for that Money: Or if they only lay them on upon Houses, they will do it for 10 s. per Thousand Some Workmen tell me, That for dressing and laying on of Shingles upon Churches and Steeples, they have (commonly) 18 s. per Thousand.

7. *Price of dressing old ones.*] For dressing of old Shingles, [that is new hewing them, and cutting of the ragged lower ends] Workmen tell me they have, (I think) 6 s. per Thousand.

8. *How many will cover a Square.*] If the Shingles are four Inches broad, and laid at four Inches Gage, 81 Shingles will cover a square Yard; and consequently 900 will cover a Square, (or 100 Superficial Feet) of Healing: But, because



cause Shingles seldom hold to be all four Inches broad; therefore they commonly allow 1000 to a Square, and of Nails as many.

### *Shingling.*

The laying on of Shingles,  
See *Shingles*.

### *Skinlog.*

See *Bricks*, N. 5.

### *Shop-windows.*

These may be afforded at the same rate as plain or batton'd doors, besides the Iron-work, as Bolts, Staples, Hinges, Locks, Keys, Latches, Chains, &c.  
See *Doors*, N. 4.

### *Shreadings.*

The same as *Furrings*.

### *Silery.*

As *Cilery*.

### *Skewback.*

See *Arches*, N. 7.

### *Skirting-boards.*

The narrow Boards fitted round the under-side of Wain-scot against the Floor.

### *Slabs.*

The out-side sappy Planks, or Boards sawn off from the sides of Timber.

## *Slating.*

1. *What.*] Slating is the Covering of Houses with Slate.

This kind of Covering is very neat, especially the *Blue-slate*; as for the other kind of Slate, (known in some Places by the Name of *Horsham-stone*,) See *Horsham-stone*.

The *Blue-slate*, cut into long Squares, or Escallops, shews very handsome, and is commonly us'd in Covering of Summer, and Banqueting-houses in Gardens; it being a very light and lasting Covering.

But as this kind of Covering is very handsome, so also 'tis very chargeable; for Roofs cover'd with Slate, must be (first) boarded over, the Slates hang'd on Tacks, and laid with finer Mortar than Tiles.

But if these Slates be rudely cut, and carelessly laid, (in respect of Form) it is then accounted a cheaper Covering than with plain Tiles; especially in those Countries where the Earth affords plenty of them.

2. *Price of.*] This kind of Covering is valu'd by some from 3 s. to 6 s. the Yard square, or by the Square of 10 Foot, (that is 100 Feet) from 30 s. to 3 Pounds, or more in some places.

3. *Price of Pointing of Slates.*] The Pointing of Slates, [that is hewing them, and making them fit for the Work,] is worth, (says Mr. *Wing*) about 12, or 13 d. per Square.

4. *Price*

4. *Price of Slates* ] Slates at the Pits are worth, (says Mr. Wing,) 12 or 14 s. per Thousand, which will nearly do 36 square Yards.

5. *Of Measuring* ] Slating is in some places measur'd by the Rod of 18 Foot Square, which contains 324 superficial Feet, or 36 square Yards.

. In measuring this sort of Work, where there are Gutters or Valleys, there is commonly an Allowance, which is to take the length of the Roof all along upon the Ridge; which makes the Gutters double Measure, viz. as much more as really it is; which in some places is allow'd, and in others not; which depends upon the Custom of the Place.

### *Slates.*

See *Slating*, N. 3. 4.

### *Sleeper,*

In Architecture is the Oblique Rafter that lies in a Gutter. See *Hip*. N. 1.

### *Slipper.*

The same as *Plinth*.

### *Sluces.*

Vents, or Drains for Water. See *Alder*, N. 3.

### *Smiths.*

1. *Work* ] Smith's-work in relation to Architecture, is of divers kinds, as *making of Casements*; (for which see *Casements*, N. 2.) *Pallisado-work* in Gates or other ways, [see *Palisado*, N. 4.) For making Dogs. Bars. large Hooks, Thimbles, Hinges, Staples, Grates, &c. they have in some places 3 d  $\frac{1}{2}$ . in others 4 d per Pound. But for small and neat Hooks, Hinges, Staples, &c. they have from 4 d. to 8 d per Pound. For Iron Balconies, 5 d the Pound.

2. *Bill to make.* ] A Smith's Bill should be made after this manner.



*Mr. Zachariah Zinthos, of London, his Bill of Materials had of, and Work done by, Samuel Smith, 1724.*

		<i>l.</i>	<i>s.</i>	<i>d.</i>
June 24.	For 8 large Casements, weighing 80 $\text{lb}$ at 6 <i>d</i> per Pound.	}	2—	0—0
July 2.	For 10 small Casements, weighing 60 $\text{lb}$ at 6 <i>d</i> . per Pound			
12.	For 10 pair of Hooks and Rides for Doors, weighing 60 $\text{lb}$ at 4 <i>d</i> . per Pound.	}	1—	0—0
Sept. 10.	For 2 great Bars for the Chimney, weighing 40 $\text{lb}$ . at 4 <i>d</i> . per Pound.			
Octo. 13.	For 3 Bars for Doors, weighing 30 $\text{lb}$ . at 4 <i>d</i> . per Pound.	}	0—	10—0
30.	For 4 Dogs, weighing 25 $\text{lb}$ . at 4 <i>d</i> . per Pound.			
Nov. 3.	For 3 great Bolts for Doors, weighing 4 $\text{lb}$ $\frac{1}{2}$ . at 4 <i>d</i> per Pound.	}	0—	1—6
	Summ		6—	3—2

*Soffita.*

See *Soffita*.

*Soils.*

See *Sells*.

*Socle, or Zocle.*

The same as *Plinth*. See *Zoccolo*.

*Solder, or Sodder.*

1. *What* ] There are several kinds of Solder, but that which more immediately relates to our present Business is Solder for Lead, which is made of Lead and half as much Block-tin. This is for Plumbers use; for Glaziers use it may be somewhat finer.

2. *Price of.* ] This is sold from 8 *d* to 10 *d*. per Pound, according to its fineness.

3. *To know if fine enough for the Glazier's use* ] Some Glaziers tell me, That to know whether their Solder be fine enough for their use; they take a piece of it, and bend it too and fro near their Ear; for if it be of a fit temper it will crackle like Nits.

*Solive.*

From the *Latin*, *Solum* a Floor, signifies a Joist Rafter, or piece of Wood either slit or saw'd, wherewith the Builders lay their Ceilings. These are made of different Thicknesses, according as their Lengths require; and their Distances from each other are usually equal



equal to their Depths. In *Latin* we call 'em *Tignæ*.

### *Sommering.*

See *Arches*, N. 7.

### *Spira.*

Is properly *Latin* for the Fold of a Serpent laid at Rest, or the Coil of a Cable Rope, &c. In *Architecture* 'tis sometimes used for the Base of a Column, this making a Figure not unlike those.

### *Splaying.*

Of Windows and Doors.  
See *Bricklayers*, N. 2.

### *Springs.*

For *Casements*.] Some Smiths tell me, They have 6 *d.* per piece for Springs for *Casements*, of the common or ordinary Fashion. But I have seen some Springs for *Casements* that were something extraordinary in their Workmanship; they being a kind of double Springs, which seem'd as if a Right and Left-hand Spring had been join'd together for about three or four Inches from the Shoulder, where they were driven into the Timber; but at the end where the Scrolls were at least two Inches asunder, they had a Scroll turn'd both upwards and downwards in each Spring; so that each Spring seem'd like two Springs turn'd back to back. The Smith that made these Springs, told me, that he had 1 *s.* per piece for 'em.

### *Square.*

A certain Measure, (made use of in Measuring several Artificers Works) consisting of 100 superficial Feet.

### *Square-nails.*

See *Nails*, N. 21.

### *Stairs*

1. *What.*] Stairs are the Steps whereby we ascend and descend from one Story of a House to another.

2. *Dimensions of.*] Several Writers of *Architecture*, have laid down several, and different Rules for the height, breadth, and length of Stairs, or Steps, and that according to the several Capacities of the *Staircases*. But (in general) they forbid more than six, for the height of each Stair; and more than eighteen, and less than twelve Inches for the breadth, and more than 16, and less than six Foot for the length of each Stair.

But here we must understand, that they mean these Measures should be observ'd only in large and sumptuous Buildings: For in common and ordinary Houses, they may be something higher, and narrower, and much shorter; yet in these they ought not to exceed seven, or (at most) eight Inches in height; for if they do, they will be difficult to ascend. Neither ought they to be less than nine or ten Inches in breadth; nor ought their

length to be less than three Feet.

To reduce this Doctrine (of the Dimensions of Stairs) to some Natural, or at least Mathematical Ground, *Vitruvius*, (as we see, *Lib. 9, Cap. 2.*) borrows those Proportions that make the sides of a Rectangular Triangle, which the Ancient School did express (in lowest Terms,) by the Numbers 3, 4 and 5. That is 3 for the Perpendicular, from the *Stair-head* to the Ground; four for the *Ground-line* it self or Recession from the Wall, (says Sir *Henry Wotton*) and five for the whole Inclination, or Slope in the Ascent. But this Rule is so far from being follow'd in our modern Buildings, that the contrary is rather practis'd; for by this Rule, the lower the Stairs are, the narrower they ought to be; and if a Stair be but six Inches high, he must (according to this Rule) be but eight Inches broad; whereas in this case we seldom make 'em less than a Foot broad. And if we should make Stairs so low as four Inches, (for such the Ancient Architects make mention of,) they must (by this Rule) be but five  $\frac{1}{3}$  Inches broad; which certainly is too narrow for any Stair.

3. Of making ] Tho' we have laid down Rules (in the foregoing Number) for the height and breadth of Stairs; yet Workmen are not to be so strictly ty'd to those Rules, as not to vary in the least from 'em: For they must still observe to make all the Stairs of

the same Stair-case of an equal height and breadth: To do which they must first consider the height of the Room, as also the width, or compass they have to carry up the Stairs in.

Then to find the height of each particular Stair, they ought first to propose the height of each Stair, and by that proposed height divide the whole height of the Room; which done, the Quotient will shew the number of Stairs: But if the Division fall not out exact, but that there be a Remainder; then (in this case) take the Quotient, (not regarding the Remainder) for the Number of Stairs, and by that number divide the whole height of the Room; so the Quotient shall give you the exact height of each Stair.

*Example.* Suppose the whole height of the Room be nine Foot three Inches, and suppose you design'd to make each Stair six Inches high, turn the whole height of the Room into Inches, 'twill be 111 Inches, which divide by six, the Quotient will be 18, and three remaining; therefore take 18 for the number of Stairs, and by it divide 111, the Quotient will be  $6\frac{3}{8}$  Inches, or  $6\frac{1}{2}$  Inches, which must be the exact height of each Stair.

Then, to find the breadth of each Stair, divide the width, or compass, (that you have to carry them up in) by the number of Stairs, and the Quotient will shew you the exact breadth of each Stair.

### Stair-case.

1. *What.* ] A *Stair-case* is sometimes taken to signifie the Inclosure of a pair of Stairs; whether it be with Walls, or with Walls and Rails, and Balusters, &c And sometimes 'tis taken for the whole Frame of a pair of Stairs.

2. *Of making* ] To make a compleat *Stair-case*, is a curious piece of Architecture: The vulgar Cautions about it are these, saith Sir Henry Wotton in his *Elements of Architecture*.

That it have a liberal *Light*, against all Casualty of Slips and Falls.

That the space over-head be large and airy, which the *Italians* use to call *Un bel Sfogolo* as it were, good Ventilation, because a Man spends much breath in mounting.

That the Half paces, be well distributed at competent distances, for reposing on the way.

That to avoid Encounters, and besides to gratifie the Beholder, the whole *Stair-case* have no niggard Latitude, that is, for the principal Ascent, at least ten Foot in Royal Buildings.

That the Breadth of every single Step or Stair be never less than one Foot, nor more than 18 Inches.

That they exceed by no means half a Foot in their height or thickness, for our Legs do labour more in Elevation than in Distention.

That the Steps be laid, (adds he) where they join *con un tan*

*tino discarpa*, i. e. somewhat sloping, that so the Foot may in a sort both ascend and descend together, which tho' observ'd by few, is a secret and delicate Deception of the Pains in mounting. But this Doctrine of *Stair-cases* ought to be regulated in proportion to the Quality of the Building: For a great *Stair-case* in a little House would be as improper, as a little *Stair-case* in a great House; both of them equally Ridiculous.

There is to be great care taken in the well placing the *Stair-case*; for there is not a little Difficulty to find a place convenient, so as the Stairs may be distributed without Prejudice, or Hindrance to the rest of the Building.

III. *Kinds* ] There are many kinds of *Stair-cases*; for in some the Stairs are made *straight* in others, *winding*, in others, mixt of both. Of *Straight-stairs*, some fly directly forward, others are Square, others Triangular; others are call'd *French Flights*. Of *Winding-stairs*, (which in general are call'd *Spiral*, or *Cockle-stairs*,) some are *square*, some *Circular*, or *Round*, and some *Elliptical*, or *Oval*; and these again are various; for some wind about a *Solid*, others about an *open Newel*. *Stairs* mixt of *straight* and *winding* are also of various kinds; some are call'd *Dog-leg'd*, others there are that both wind about a *Solid-Newel*, and fly about a square *Open-Newel*. I shall particularly,



(tho' briefly) describe all these several kinds, in the following Numbers.

IV. *Straight stairs* ] These are such as always fly, and never wind, and therefore are by some call'd *Flyers*. Of these there are several kinds, as

1. *Direct flyers*, or *Plain flyers*. These fly directly from one Floor to another, without turning to the right or left, and are seldom us'd, unless it be for Garret, or Cellar-stairs in ordinary Houses.

2. *Square-flyers* ] These fly round the sides of a Square Newel, either solid, or open, (so that there two kinds of 'em,) and at every corner of the Newel, there is a square Half-pace, that takes up  $\frac{1}{4}$  of a Circle. So they fly from one Half-pace to another; and the length of the Stars is Perpendicular to the side of the Newel

3 *Triangular flyers*.] These fly round by the sides of a Triangular Newel, either solid or open, (so that there are also two kinds of these,) and at each corner of the Newel there is a Trapezial Half pace, that takes up 120 Degrees. (or  $\frac{2}{3}$ ) of a Circle. So they fly from one Half pace to another; and the length of the Stairs is Perpendicular to the side of the Newel.

*Palladio* tells us, That *Triangular stairs* are to be seen in some ancient Edifices; and of this sort, (says he) are those of the Cupola of St. Maria Rotunda, which are open in the middle, and receive Light

from above. Those also at *Sancto Apostolo* in the same City, are of the same kind.

4. *French flyers* ] These kind of Stairs, first fly directly forward, 'till they come within the length of a Stair of the Wall, and then they have a square Half pace; from which you immediately. (without any Stairs between) ascend to another Half-pace; and from this second Half-pace the Stairs fly directly back again, parallel to the first flight.

V. *Winding stairs* ] These are such as always wind, and never fly: There are many kinds of these Stairs; for some wind round a Circle, others round an Ellipsis, or Oval, others round a Square, and others round an Equilateral Triangle: And of each of these, some wind round a solid Newel, and others round an open, or hollow Newel. Again, some are set upon Columns, and some Stairs are double, and some are Quadruple. I shall describe each of these in the following Numbers.

1. *Circular winding stairs*. ] These are of four kinds. First, Such as wind about a solid Newel, and the fore-edge of each Stair is a right-line pointing to the Centre of the Newel. These are common in Church-Steeple, and great old Stone-houses. Secondly, Such as wind round an open Newel, and the fore-side of each Stair is a right Line pointing to the Centre of the Newel. Of this kind are those in the Monument of London Thirdly, Such as wind round a solid Newel, but

but the fore-side of each Sair is an Arch (of a large) Circle, that points quite by the Centre, (and near to the Circumference) of the Newel. In these the Stairs are much longer than in the common Winding-stairs. Of these there may be two kinds: For their Ichnography being drawn, the Stairs may be contriv'd to be either Concave, or Convex on the fore side. Fourthly, there

are other Stairs, in all Respects like those last describ'd, only they have an open Newel. These kind of Stairs are said to be invented by *Mark Anthony Barbaro*, a Gentleman of *Venice*.

Any of these Kinds of Winding-stairs, take up less room than any other kind of Stairs whatsoever.

In Stairs that wind round a Solid-Newel, Architects make

the Diameter of the Newel  $\left\{ \begin{array}{l} \frac{1}{2}, \text{ or} \\ \frac{1}{4}, \text{ or} \\ \frac{1}{3}, \text{ or} \\ \frac{2}{7} \end{array} \right\}$  of the Diameter of

the whole Stair-case; according as the Stair-case is in bigness; for if the Stair-case be very small, they make the Newel but  $\frac{1}{4}$  of its whole Diameter; and if very large then  $\frac{3}{7}$ ; and so proportionably of the rest.

the Newel must be  $\frac{1}{2}$  the Diameter of the whole Stair-case. But I see no Reason why these open Newels ought not to be proportion'd to the Size of the Stair-case, as well as the solid ones.

In Stairs that wind round an open Newel, *Palladio* tells us,

Then, as to the Number of Stairs in one Revolution, *Palladio* tells us,

That if the Stair-case be  $\left\{ \begin{array}{l} 6, \text{ or } 7, \\ 8, \\ 9, \text{ or } 10 \\ 18, \end{array} \right\}$  Foot Diameter, then

there may be  $\left\{ \begin{array}{l} 12 \\ 16 \\ 20 \\ 24 \end{array} \right\}$  Stairs in one Revolution about the Newel.

2. *Elliptical winding Stairs.* Of these there are two kinds: one winding round a Solid, and one round an open Newel. They are much of the Nature of Circular Stairs, only in those, the Newel is a Circle, but in these an Ellipsis, or

Oval. These kind of Stairs are very handsome and pleasant, (says *Palladio*) because all the Windows and Doors are commodiously placed in the middle and head of the Oval. I have made one of these, (says he,) with an open

Newel at the Monastery of Charity at Venice.

3. *Square-winding-stairs.* ]

These wind round a Square-Newel, either solid, or open; (and therefore are of two kinds) and the fore side of each Stair is a right Line pointing to the Centre of the Newel.

4. *Triangular winding-stairs.* ]

These wind round a Triangular-Newel, and the fore-side of each Stair is a right Line, pointing to the Centre of the Newel. And because the Newel may be either solid, or open, therefore there are two kinds of them.

5. *Columnated-window-stairs.* ]

*Palladio* mentions a pair of Stairs belonging to the *Portico's* of *Pompey* at *Rome*, that were set upon Columns, that the Light (which they receiv'd from above,) might distribute it self to all Parts alike. Such another pair were made by *Bramante*, (an excellent Architect in his Time) at *Belvedere*, the Pope's Palace.

6 *Double-winding-stairs* ]

*Scamozzi* mentions a Stair-case of this Form, made by *Piedra del Bergo*, and *Jehan Coffin* at *ciamburg* in *France* in the King's Palace. They are so contriv'd, that two Persons, one ascending, and the other descending, shall not come at one another. *Mr. Grew* (in his *Museum Regalis Societatis*;) gives us the Description of a Model of this kind of Stair-case, (which Model is kept by the Royal Society, in *Gre-sham-College*;) thus; The Foot of one of these Stair-cases

(says he) is opposite to that of the other; and both make a Parallel Ascent, and within the same Cylinder. The Newel in the middle is hollow, and built with long Apertures to convey Light from Candles placed at the bottom, and on the sides of the Newel into both the Cases.

7. *Quadruple winding stairs.* ]

*Palladio* mentions a Stair-case of this Form, which King *Francis* the First caus'd to be made in the Castle of *Chambor* near *Bloyse*: It consists of four Stair-cases (carried up together) which have four Entrances, *viz.* one to each; and go up one over another in such manner, that being made in the middle of the Building, the 4 may serve for 4 Apartments; so that the Inhabitants of one need not go up and down the Stairs of the other; and because 'tis open in the middle, they all see each other go up and down without any Hindrance to one another.

VI. *Mixt Stairs* ] These are such as do both fly and wind; and therefore are by some call'd by the general Name of *Flyers* and *Winders*. There are several Kinds of them. As

1. *Dog-legg'd Stairs.* ] These first fly direct'y forward then wind a Semicircle, and then fly directly back again, parallel to the first Flight.

2. *Square Flyers and Winders* ]

These have a square Newel, either solid, or open; (and therefore are of two kinds,) they fly by the sides of the Newel,



Newel, and wind (a quarter of a Circle) at each Corner.

3. *Solid, and open Newel'd-flyers, and Winders.*] These are of two kinds. For some do first wind (a quarter of a Circle) about a solid Newel then fly by the side of a square open Newel, then wind by a solid Newel again, then fly again, as before, and so alternately. Others fly first, and then wind, and then fly again, and so alternately.

Let this suffice at present for the various kinds of Stair-Cases. However, in the mean time, the bare Description of these several kinds of Stairs, together with what has been said above, N. V. §. 1. and in *Stairs*, Num 3 may be a pretty good Guide to the ingenious that have a mind to make any of these kind of Stairs.

VII *Price of Stair cases.*] The Price of Stair-cases is various, according to their various Kinds, Sizes, and Curiosity of Workmanship. They are sometimes rated at so much *per* piece; and sometimes at so much *per* Stair.

An ordinary pair of Stairs with Flyers and Winders, of about six Foot. and four Foot, made of Elm-boards, are accounted to be worth 2 s. 6 d. or 2 s. 8 d. *per* Stair, the Workman finding all Materials, as Boards, Nails, &c. But if the Materials are found by the Owner, then 9 d. or 10 d. *per* Stair, is a good Allowance for the Workmanship.

But for Stair-cases that have an open Newel, with a Land-

ing-place at every sixth or eighth Stair, being about three Foot all the way: These Stairs, with Rails, Ballasters, String-boards, Posts, Balls, Pendants, and such other Ornaments may very well be worth 4 s. 6 d. 5 s. or 6 s. *per* Stair.

### *Stanchions.*

The same as *Punchins*.

### *Staples.*

What they are every one knows. For their Price, see *Iron*, Num. 4. and *Smith's Work*, Num. 1.

### *Steening of Wells.*

See *Bricks*, Num. III. §. 1.

### *Steps.*

The same as *Stairs*.

### *Stiles.*

In Joinery, the upright pieces that go from the bottom to the top in any Wainscot, or the like, are call'd Stiles.

### *Stillatory.*

The Room that a Still, or Limbeck is set up in, for distilling Strong-waters, &c.

### *Stilobatum.*

The Body of the Pedestal of any Column.

*Stock bricks.*

See *Bricks*, N. 111. §. 15.

*Stones.*

1. *Their Kinds* ] There are several kinds of Stone ; as *Marble Fire stone*, *Purbeck stone*, *Rag - stone*, *Alabaster*, *Free-stone*, and *Common-stone* ; of all which, except the two last, I have already treated in their proper Places of the Alphabet. As for *Free-stone* ; there is a sort of Stone commonly dug in the *Peninsula of Portland* in *Dorset-shire*, (and commonly known by the Name of *Portland stone*.) that is much us'd in Building ; it being much softer and whiter than *Purbeck-stone*, and is commonly rais'd out of the Quarries in bigger Blocks than *Purbeck stone*. This *Portland stone* is by some Authors call'd *Free stone*, tho' there is a sort of Stone found in *Oxfordshire*, that is call'd *Free-stone* : And some call *Rigate*, or *Fire-stone*, *Free-stone*.

*Common-stone* needs no Description ; it being that which is commonly us'd, and found almost every where ; and is that of which I shall principally speak in the following Numbers of this Word.

2. *Of their Nature.* ] If I had Leisure (says the Honourable Esq; *Boyle* ) I could easily shew you, That ways (hitherto unus'd) may be found out, (as I have partly try'd) to examine the Nature and Goodness of *Marble*, *Alabaster*, and other Stones. A competent Knowledge of

the Sap that is to be found in Stones imploy'd for Building, is of so much Importance, that the experienced Master-workmen have confest to me, That the same sort of Stone, and taken out of the same Quarry, if dug at one Season, will moulder away in a very few Winters ; whereas dug at another Season, it will brave the Weather for very many Years, not to say Ages.

Again, (says the same ingenious Author in another place,) Experienc'd Masons tell us, That as there are some sorts of Stone that will decay in few Years ; so there are others that will not attain their full Hardness in 30, or 40, or a much longer time.

Again, (says the same Author) there are in some Places Quarries of solid and useful Stone, which is employ'd about some stately Buildings I have seen, and which yet is of such a Nature, (wherein divers other sorts of Stone are said to resemble it) that tho' being dug at a certain Season of the Year, it proves good and durable, as in those Structures newly mention'd ; yet imploy'd at a wrong time, it makes but ruinous Buildings ; as even the chief of those Persons, whose Profession makes him more conversant with it, has himself acknowledged (to me) to have found by sad Experience.

3. *Of drawing* ] An ancient and experienced Mason of my Acquaintance, tells me, That common Stones have a cleaving

ving Grain, (as they lie in the Quarry,) and a breaking one; the first, (he says) runs parallel with the Horizon; the other is perpendicular to it. The Method which he uses in *drawing of Stones*. [that is, getting them out of the Quarry,] is thus. Having uncoped it [that is, taken off the Earth from the Stone,] they observe (by the Grain) where the Stone will cleave, and there they drive in a good many Wedges, till they have cleft him off from the rest of the Rock; and having thus loosen'd him, they next proceed to *break him*, which they thus perform; they applying their Rule to him at both Ends, mark out the Breadth they would have him, (e. g. suppose 10 or 12 Inches, or more, according to the Use they design the Stones for;) and by these Marks they strike a Line with the Corner of their Stone-axe; and by this Line they cut a little Channel with their Stone-axe, and in this Channel they set 6 or 8 Iron-wedges, (supposing the Stone to be but 3 or 4 Foot long;) which they drive very carefully with soft and gentle Strokes, keeping them all forward together, and not one before another, least it break the Stone across, and not by the length of the Channel. Yet, he says, that this Method of driving the Wedges, is not always to be observ'd; for sometimes a Stone is not through the whole length of an equal Solidity, but is in some places softer, and in others harder; this they find,

(and observe) in cutting their Channel; and these Wedges that stick in those softer places, they venture to drive a little faster than the others. And this, he says, he has found by long Experience, to be the best way of breaking Stones.

Having thus broken them in length, which by this Method they can do to any Size within less than an Inch; (which is near enough for rough Stones) they next apply a Square to the straight side, and striking a Line, they proceed to break them in breadth, in the same manner, as before in length; also now they size them for the length, as before for the breadth.

By this Method of drawing of Stones, he says one Load of Stones will do as much Walling as a Load and half of such Stones, as in drawing are broken at random; for in this last Case, one Stone has commonly a very acute Angle, another a very obtuse one; whence it comes to pass, that they require abundantly more scapting, and wast much more of the Stones, than when drawn by the Method above mention'd.

The same ingenious old Man tells us, That some London Stone-cutters have told him, that hard Stones have not a Cleaving-grain, as the soft ones (in our Contrey) have: And therefore when they are minded to break up a Stone in such Quarries, they have great heavy Stone axes, with which they work down a deep Channel in the Stone, into which

Channel



Channel (at the top) they lay two Iron-bars, (such as Smiths have from the Forge to work out,) and between these Bars they drive their Iron-wedges to break off the Stone; for their Wedges will not go where there is not a Channel made for them, as they will in soft Stones.

Some in drawing of Stone make use of Gun-powder; concerning which, take the following Account (in his own Words) from the Honourable Esq; *Boyle* It has long been, and still is in many places (says he) a Matter of much Trouble and Expence, as well of Time as Money, to cut out of Rocks of Alabaster and Marble, great Pieces to be afterwards squar'd, or cut into other Shapes; but what by help of divers Tools and Instruments, cannot in some Quarries be effected without much Time and Toil, is in other places easily and readily perform'd, by making with a fit Instrument a small Perforation into the Rock, which may reach a pretty way into the Body of it, and have such a Thickness of the Rock over it, as is thought convenient to be blown up at one time; for at the further End of this Perforation, there is plac'd a convenient quantity of Gun-powder, and then all the rest of the Cavity being fill'd with Stones, and Rubbish strongly ram'd in. (except a little place that is left for a Train,) the Powder, (by the help of that Train) being fir'd, (and the impetuous Flame being hin-

dred from expanding it self downwards, by Reason of the newly mention'd Obstacle, concurring with its own tending another way, displays its Force against the upper parts of the Rock, which in making it self a Passage. it cracks the Rock into several pieces, most of them not too unweildy to be manag'd by the Workmen. And by this way of blowing up of Rocks, a little vary'd and improv'd, some ingenious Acquaintance of ours, imploy'd by the Publick, to make vast Piles, have lately, (as I receiv'd the Account of themselves) blown up, or scatter'd with a few Barrels of Powder, many Hundred, not to say Thousand, Tuns of common Rock.

4. *Load of Stone, how much* ] Some Masons tell me, That 25 Foot of Stone make a Load. But (it's to be observ'd) they do not mean 25 solid Feet, but superficial measur'd on the Face of the Stones, and not on any of the Beds.

For a clearer Understanding of this, it must be noted, That every squared Stone has 6 Plains, or Sides, *viz.* The upper, and under Bed, the Face, and the Back, and the 2 Heads, or Ends. Of these 6 Plains, those 2 opposite ones that are the cleaving way of the Stone, (and which in the Quarry lay parallel to the Horizon,) are call'd the *Beds*; and of the best of the 4 Plains that are perpendicular to these, (and consequently are the breaking way of the Stone,) they make the *Face*, and the Plain

Plain opposite to the *Face* (and, which commonly goes rough as it comes from the Quarry) they call the *Back* of a Stone; and the other 2 perpendicular Plains are call'd the *Heads*, or *Ends*.

5. *Cord of Stone, how much.*] In some parts of *Kent*, Stones are sold by the *Cord*, consisting of 27 solid Feet, viz. 3 Feet long, 3 broad, and 3 high.

6. *How much Walling a Load of Stones will do*] An old and experienced Mason, tells me, That a Load of Stones will build about 20 Foot of 18 Inch Wall; this he reckons a Medium, the Extreams he reckons 15 and 25.

7. *Soft Stones, how wrought smooth*] An old experienced Mason, tells me, that some Stones are too soft to bear a good Edge; for when they are scap'd, and wrought smooth, their Edges crumble off; and therefore (in this Case) to make them smooth, they proceed thus: After they are scap'd, they take an old Card, (such as Wool is carded with) and with it they work out the Strokes of the Axe, then they bring it to a better liking, by rubbing it with a piece of the same Stone. And thus our Country-Masons manage all soft Stones.

8. *Price of drawing and carrying of Stones*] The old Mason mention'd above, Num. 3 tells me, That he has 3 s. the Load for drawing of Stones, after the Method mention'd, Num. the 3d. and for the Carriage of a Load, (tho' it be

not above  $\frac{1}{2}$  a Mile) he has 2 s. the Load.

Another Mason tells me, That he has drawn Stones for 9 d. the Load; but then they lay almost level with the Ground, and requir'd but very little uncopeing. He also told me, That another Mason, which he nam'd to me, (and whom I also knew,) used to draw Stones for 1 d. per Foot.

Also a *Suffex* Gentleman of my Acquaintance, tells me, That he can have very good Stones drawn for 2 s. 6 d. per Cord, and have them carry'd almost a Mile for 3 s. 6 d. per Cord.

But as the Price of drawing Stones is various in different places, according to the different Manners of drawing them, and according to the different Circumstances of *Difficulty*, or *Easiness* of drawing them, &c. So also is the Price of carrying them very various in different Places, according to the Custom of those Places. See more concerning this Matter, in the word *Ashlar*.

9. *Price of Scapling Stones*] Several Masons tell me, That they commonly give 5 s. for scapling 100 Foot of Stones; this is Journey-man's Wages, out of which (they say) the Master has but small Profit. They also tell me, That they reckon 50 Foot a Day's Work, tho' some Workmen will do 60 Foot in a Day: But (it must be observ'd) the Measure is superficial, and they measure only the *Face* of the stone tho' they scaple 5 sides to each Stone, viz. A *Face*, two *Beds*, and

and two *Ends*; so the *back* goes rough as it came out of the Quarry. But in Scapling, they always, (if they can conveniently,) chuse *that* for the *Face* of the Stone which will be most for their Advantage.

### Stone-work.

*Of Measuring.*] In some parts of *Sussex*, *Masons* have a Custom to measure their Stone-work thus; they apply one end of a Line to the top of the Copeing, and so carry it along the flant of the Copeing, and press it under the Toothing (if any be,) and from thence they carry it to the Water, or Ground-table, (if any such be in the Wall) where they press it in likewise, and then carry it over the Table to the bottom of the Foundation; and this Dimension, thus taken, they account for the height; which multiply'd into the length, gives the Content.

But (I think) in most places they are not so nice, as to take the height by a Line, but are contented with the perpendicular height.

### Stove.

A Hot-house, or Room. *Paladio* observes, That the Ancients us'd to warm their Rooms, with certain secret Pipes that came through the Walls, conveying Heat, (as I conceive it, says *Sir Henry Wotton*) to several parts of the House from one common Furnace. Whether this were a Custom, or a

Delicacy, (says *Sir Henry Wotton*) it was certainly both for Thrift and Use, far beyond the *German Stoves*.

### Strait.

A Term us'd by Bricklayers, it is half, (or more, or less than half) a Tile in breadth, and the whole length. They are commonly us'd at the Gable-ends, where they are laid at every other Course, to cause the Tiles to *break Joint*, as they phrase it; that is, that the Joyns of one (Course) may not answer exactly to the Joyns of the next Course, either above, or below it.

### Straight-arch.

See *Arch. Num. 7.*

### Structure.

See *Building.*

### Struts.

See *Dragon-beams.*

### Stuff.

The Wood that Joyners work upon, they call in general *Stuff*.

### Stretchers.

See *Arch. Num. 7.*

### Stylobatæ.

The same as Pedestals; a Greek Word from *Stylos* a Pillar



T A

Pillar and *Basis*, the Base or Foot thereof.

*Substruction.*

See *Foundation*, Num. 2.  
§. 7.

*Summer-tree.*

A Beam full of Mortises for the Ends of Joists to lie in.  
See *Bress-Summers* and *Girders*.

*Supercilium.*

As *Lift*.

*Symmetry.*

Is the Conveniency that runs between the *parts* (of a Building) and the *whole*.

*Systole.*

Is that manner of placing Columns, where the Space between the two *Fusts* consists of two Diameters or four Modules.

*Table, or Glass.*

SEE *Cafe of Glass.*

*Tabern,*

A Cellar.

*Tacks.*

See *Nails*. Numb. 22.

*Talon.*

Same as *Heel*; a sort of Moulding in Architecture;

T H

See *Heel* *Talon* is the French Word for *Heel*.

*Taper.*

All sorts of Stuff, or Work that is smaller at one end than the other, and diminishes gradually from the biggest end, is said to be *taper*.

*Tarrace, or Tarras.*

An open Walk, or Gallery Also a flat Roof on a House Also a kind of coarse Plaster, durable in the Weather.

*Tassels.*

Pieces of Board that lie under the ends of the Mantle-tree.

*Teeth.*

As *Dentils*.

*Templets.*

See *House*, N. 4.

*Tenia.*

As *Lift*.

*Thermes or Termes.*

A French word from *Terminus*, the Roman God of Boundaries or Land-marks, which they us'd to represent in a humane Figure, with half a Body, as if it proceeded out of a Sheath or Case. These they fixed in the Earth as Land-marks. In Architecture they serve as a kind of Symbolical Column.

To

To give 'em a Figure proper to represent a delicate Column, their Arms are lopt off, and their Body does not appear below the Girdle: These *Termini* are very proper in the Decorations of a Theatre, as also in Pieces of Architecture *de Treillage*, (as *le Clerc* calls it) crail'd Work kind.

These *Termini* have this in common with the *Cariates* (or *Cariatick Columns*) that they should never be brought to match with the common Columns: This Advantage, however, they have in particular. That a Man may give them what degree of Delicacy he pleases, by lengthning out their Sheath, and raising the Figures to any height desired. By this means they'll be made to suit gay airy Architecture, such as Cabinets, Salons, and Arbours of crail'd Work, especially require. 'Tis not reasonable, in my Opinion (adds *le Clerc*) to reduce the Figures of Angels into *Termini*: tho' we see it has been formerly done in Places of Distinction.

### *Tennon.*

A square end of a piece of Timber fitted into a Mortise. See *Mortises*.

### *Terrafs.*

As *Thrace*.

### *Tetradoron.*

A kind of Brick so called. See *Brick*, N. 111. §. 18.

### *Thack-tiles.*

As *Plain-tiles*. See *Tiles* N. 111.

### *Thatching.*

1. *What.*] Thatching is the covering the Roof of a House or Barn, with Straw, or Reed.

2. *With Straw.*] *Thatch*, (says *Worldidge*,) is a common Covering in many Places yet is some to be preferr'd before other some; the best which I have seen, (says he) is that which is call'd *Helm* that is long and stiff Wheat-Straw, (with the Ears cut off,) bound up in Bundles unbruised; which well laid, lies thin, lasts long, and is much neater than the common way.

Thatchers commonly allow about two good Load of Straw for five Square of Thatching, or one Load to  $2\frac{1}{2}$  square.

A Thatcher of my Acquaintance, tells me. That one *Rubble* a Mason of *Roatham* in *Kent*, proffer'd (for a small matter) to teach him how to Thatch a Roof so, that no Mouse nor Rat should come into it: But he was not so thoughtful then, as to get the Receipt of him, tho' it would have been of no small use to him; for the *Roatham* Mason said, he knew a Thatcher that had 4 *d.* per square more for doing it so. It is a thing worth inquiring after.

In some parts of *Kent* they use no Withs to bind on their Thatching-rods, but (instead thereof) they use *Rope yarn*, (as they call it) which is a single Strand.

Strand-line, about the size of a Penny Cord; it is Pitched with Pitch, according as some do their Well-ropes. A *Kentish* Thatcher told me, that one Pound of it (which costs 2 *d.*) will do about a square of Thatching. He had about 18 Pound of it for 18 square and 90 Foot of Thatching on a Barn; and I think he had but 40 Pound for 48 Square and 88 Foot: He tells me, 'Tis more durable than Withs; for they when are grown fear, will fly and break; but this will not. See P. *Withs*.

3. *With Reed.*] In some parts of *Sussex* and *Kent*, they Thatch with Reed instead of Straw. Some Workmen tell me, That this kind of Thatching will indure 40, 50, or 60 Years. They also tell me, That Reed is sold by the Thousand, viz. A Thousand handfuls, each handful being about 8, 9, or 10 Inches in Circumference, bound up in a lattle Band; a Thousand of which will cost 15 or 16 *s.* and will cover about 3 Square of Roofing. For laying of which they have 4 *s.* per Square.

4. *Price of.*] Common Thatching is done in some Places for 2 *s.* 6 *d.* per square; but in other Places they have 15 8 *d.* and in others 3 *s.* per square. And for Thatching with Reed they have 4 *s.* per square.

5. *Of Measuring*] Thatching is measur'd by the square as Tiling: And in some Places they are allow'd so many Feet more as the Corners and Gables are Feet in length. In other Places they are allow'd (only) so

many half Feet more to the whole, as the Gable heads are Feet in length; and the Reason they urge for this Custom, is, because they have more trouble in turning the Straw (at the Gables) that it may be cut as it is at the Eaves. If one side of a Roof (only) be Thatched, and not the other; they (then) take their Dimensions over the Ridging, as far as the new Straw goes.

### *Thimbles:*

See *Iron*, N. 5.

### *Thorough-framing:*

See *Framing*, N. 7.

### *Thorough-lighted.*

Rooms are said to be Thorough-lighted when they have Windows at both ends.

### *Tiles.*

See *Tiles*.

### *Timber:*

1. *What.*] All those kinds of Trees, which being cut down and season'd, are useful for the Carpenter, Joyner, or other wooden Tradesmen to work upon, are call'd *Timber* when they are cut down, and *Timber Trees* when they are growing.

2. *Kinds.*] There are many kinds of Timber; it were tedious to mention 'em all. I shall content my self at pre-



sent, briefly to shew the most common uses, and of the most common kinds of Timber, as I find it set down in Mr. Evelyn's *Sylva*, and Mr. Worlidge's *Systema Agriculturae*. As follows.

1. *Oak*] The several uses of Oaken-timber for Buildings, and other Mechanick Uses, is so universally known, that 'twere needless to enumerate them. To endure all Seasons of the Weather, there is no Wood comparable to it; as for Pales, Shingles, Posts, Rails, Boards, &c. For Water-works also 'tis second to none; especially where it lies obvious to the Air as well as the Water, there is no Wood like it.

2. *Elm*.] If the Elm be fell'd between *November* and *February*, it will be all Spine, or Heart, or very little Sap, and is of most singular use (in the Water) where it lies always wet, and also where it may be always dry. It is also of great use for its toughness and therefore us'd by Wheel-wrights, Mill-wrights, &c. It is also good to make Dressers, and Planks to chop on, because it will not break away in Chips like other Timber.

3. *Beech*] Its use is principally for the Turner, Joyner, Upholsterer, and such like Mechanick Operations, the Wood being of a clean, white, and fine Grain, and not apt to rend, or slit: Yet it is sometimes us'd. (especially of late Years) for Building-timber. And if it lie always wet, (as for Ground-guts, and the like) 'tis thought to endure longer than Oak will in that Case.

4. *Ash*.] The use of Ash is almost universal, good for Building, or any other use where it may lie dry; serves the Occasions of the Carpenter, Plough-wright, Wheel-wright, Cart-wright, Cooper, Turner, &c. For Garden Uses also, no Wood exceeds it; as for Ladders, Hop-poles, Palisade-hedges, &c. It serves also at Sea, for Oars, Hand spikes, &c.

5. *Fir*] This kind of Timber is commonly known by the name of *Deal*, and is of late much us'd in Building, especially within Doors, for Stairs, Floors, Wainscot, and most ornamental Works.

6. *Walnut-tree*.] This Timber is of universal use, (unless for outward Edifices,) none better for the Joyner's use, it being of a more curious brown colour than Beech, and not so subject to the Worms.

7. *Chestnut-tree*.] This Timber is (next to Oak) one of the most sought after by the Joyner and Carpenter, and of very long lasting, as appears by many ancient Houses and Barns built of it about *Gravesend* in *Kent*.

8. *Service tree*.] This Timber is useful for the Joyner, it being of a very delicate Grain, and is fit for divers Curiosities: It also yields Beams of a considerable bigness for Buildings.

9. *Poplar, Abal and Aspen*] These kinds of Timber differ but little from one another; and of late they are often us'd instead of *Fir*; they look as well, and are tougher and stronger.

10. *Alder*.

10. *Alder*] This is useful for Ladder and Scaffold-poles, as also for Sewers, or Pipes to convey Water; for if it lie always wet, it will harden like a very Stone; but where it is sometimes wet, sometimes dry, it rots immediately.

11. *Lime tree.*] I have known, (says my Author,) excellent Ladders made of Lime-tree-poles, and of a very great length.

III. *Time of Felling*] The Time of the Year for this Work is not usually till about the end of *April*, (at which Season the Barks does commonly rise freely, and if there be any quantity of Timber fell'd, the Statute obliges us to fell it *then*, the Bark being necessary for the *Tanner*) But the Opinions and Practice of Men have been very different concerning the best time to fell Timber: *Vitruvius* is for an Autumnal Fall; others advise *December* and *January*: *Cato* was of Opinion, That Trees should have first born their Fruit, or at least should not be Fell'd 'till the Fruit was full ripe, which agrees with that of the Architect: And tho' Timber unbarked be indeed most obnoxious to the Worm, yet we find the wild Oak, and many other sorts Fell'd over late, (and when the Sap begins to be proud) to be very subject to the Worm; whereas being cut about Mid-winter, it neither casts, rifts, nor twines; because the Cold of the Winter does both dry and consolidate: Happy therefore were it for our Timber, if

some real *Invention* of *Tanning* without so much Bark, (as the Honourable, Mr. *Charles Howard*, has most ingeniously offer'd) were become universal; that Trees being more early Fell'd, the Timber might be the better season'd, and condition'd for its various Uses.

Then for the Age of the Moon it has been religiously observ'd; and that *Diana's* Precedency in *Sylvia* was not so much celebrated to credit the *Factions* of the *Poets*, as for the Dominion of that moist Planet, and her Influence over Timber: For my part, I am not so much inclin'd to these *Criticisms*, as to Fell Timber altogether at the Pleasure of this mutable Lady; however there is doubtless some regard to be had, *Nec frustra signorum obitus speculamur & ortus*.

The old Rules are these: Fell Timber in the *Decrease*, or 4 Days after the New Moon; some say in the *last Quarter*: *Pliny* says, (if possible) in the very Article of the Change; which hapning, (says he, in the last Day of the Winter Solstice, that Timber will prove immortal: *Columella* says) from the 20th, to the 30th Day: *Cato* four Days after the Full: *Vegetius*, from the 15th to the 25th, for Ship-timber, but never in the Increase, Trees then most abounding with Moisture, which is the only Source of Putrefaction.

Then for the Temper and Time of the Day; the Wind low, neither *East* nor *West*; neither in *Frosty*, *Wet*, or *Dewy* Wea-

Weather ; and therefore never in a Forenoon.

*Lastly*, Touching the Species; Fell *Fir* when it begins to spring; not only because it will then best quit its Coat and Strip; but for that they hold it will never decay in Water; which whatsoever *Theophrastus* deduces from the old Bridge made of this Material, (cut at this Season,) over a certain River in *Arcadia*, is hardly sufficient to satisfy our Curiosity. *Elm* (says Mr. *Worlidge*) is to be Fell'd between *November* and *January*; for then, (says he) it will be all *Heart*, or at least will have but very little Sap. And this he also says is the only Season for Felling of *Ash*.

Some Authors advise in Felling of Timber, to cut it but into the Pith, and so let it stand 'till it be dry, because, (say they) by drops there will pass away that Moisture which would cause Putrefaction.

IV. Of Seasoning] Timber being Fell'd, and Sawn, is next to be season'd; for doing of which, some advise, That it be laid up very dry in an airy place, yet out of the Wind, or Sun; at least, (say others) it ought to be free from the Extremities of the Sun, Wind, and Rain; and that it may not cleave, but dry equally, you may daub it over with Cow-dung. Let it not stand upright, but lay it along one piece upon another, interposing some short Blocks between them, to preserve them from a certain Mouldiness, which they usually contract while

they sweat, and which frequently produces a kind of Fungus, especially if there be any sappy Parts remaining.

Others advise to lay Boards, Planks, &c. In some Pool, or Running-stream for a few days, to extract the Sap from 'em, and afterwards to dry 'em in the Sun, or Air; for by so doing, (say they) they will neither chap, cast, nor cleave: (Mr. *Evelin* particularly commends this way of Seasoning of *Fir*) against shrinking there is no Remedy.

Some again commend Buryings in the Earth, others in Wheat; and there be Seasonings of the Fire, as for the scorching and hardening of Piles, which are to stand either in the Water, or the Earth. Thus do all the Elements contribute to the Art of Seasoning of Timber.

Sir *Hugh Plat* informs us, That the Venetians use to burn and scorch their Timber in the flaming Fire, continually turning it round with an Engine, 'till they have gotten upon it a hard, black, coally Crust; and the Secret carries with it great probability; for that the Wood is brought by it to such a hardness and dryness, *ut cum omnis putrefactio incipiat ab humido*, nor Earth nor Water can penetrate it. I my self, (says *Esq; Evelin*,) remember to have seen Charcoals dug out 'of the Ground, amongst the Ruins of ancient Buildings, which have in all Probability lain cover'd with Earth above 1500 Years.



V. Of *Preserving*.] When Timber, or Boards are well seasoned, or dry'd in the Sun, or Air, and fix'd in their Places, and what Labour you intend is bestow'd upon 'em; the Use of Linseed-oil, Tar, or such like Oleaginous Matter, tends much to their Preservation and Duration. *Hesiod* prescribes to hang your Instruments in the Smoak, to make them strong and lasting; *temonem in fumo poneret*: Surely then the Oil of Smoak, (or the vegetable Oil, by some other Means obtain'd,) must needs be effectual in the Preservation of Timber. Also *Virgil* advises the same, *Et suspensa focis exploret Robora fumus*, says he.

The Practice of the *Hollanders* is worth our Notice, who, for the Preservation of their Gates, Port-cullis's, Drawbridges, Sluces, and other Timbers expos'd to the perpetual Injuries of the Weather, Coat them over with a Mixture of Pitch and Tar; upon which they strew small pieces of Cockle, and other Shells, beaten almost to Powder, and mingl'd with Sea sand; which incrusts and arms it after an incredible manner, against all the Assaults of Wind and Weather.

When Timber is fell'd before the Sap is perfectly at rest, (says *Esq*; *Evelin*,) it is very subject to the Worn; but to prevent, or cure this in Timber, I recommend the following Secret, as most approved.

Let common yellow Sulphur be put into a Cucurbit Glass, upon which pour so much of

the strongest *Aquafortis*, as may cover it three Fingers deep; distil this to driness, which is done by two or three Rectifications: Let the Sulphur remaining at the bottom, (being of a blackish, or sad Red-colour) be laid on a Marble, or put into a Glass, where it will easily dissolve into Oil: With this anoint what Timber is either infected with Worms, or to be preserved from them. It is a great and excellent *Arcanum* for tingeing the Wood of no unpleasant Colour, by no Art to be washed out; and such a Preservative of all manner of Woods, nay, of many other Things also, as Ropes, Cables, Fishing-nets, Masts, or Ships, &c. That it defends them from Putrefaction, either in Waters, under, or above the Earth, in Snow, Ice, Air, Winter, or Summer, &c.

'Twere superfluous to describe the process of making the *Aquafortis*; it shall suffice to let you know, That our common *Copperas* makes this *Aquafortis* well enough for our purpose, being drawn over by a Retort: And for Sulphur, the Island of St. Christophers yields enough, (which hardly needs any refining) to furnish the whole World. This Secret (for the curious) I thought fit not to omit, tho' a more compendious way may serve the turn, three or four Anointings with Linseed-oil, has prov'd very effectual: It was experimented in a Walnut-tree table, where it destroy'd Millions of Worms immediately, and is to be practis'd for Tables, Tubes, Mathe-

*matical Instruments, Boxes, Bedsteads, Chairs, &c. Oyl of Walnuts will doubtless do the same, is sweeter and better Varnish; but above all is commended Oyl of Cedar, or that of Juniper*

For *Posts*, and the like, that stand in the Ground, *the burning the out sides* (of those ends that are to stand in the Ground) to a Coal, is a great Preservative of them. I have already, (in the fore-going Number) mention'd the Practice of the *Venetians* in a like Case, mention'd by Sir *Hugh Plat*; to which he adds, That a *Kentish Knight* of his Acquaintance, did use to burn (in this manner) the ends of his *Posts*, for *Railing*, or *Pailing*: And this was likewise practis'd with good Success by a *Suffex Gentleman*, *Walter Burrel of Cuckfield, Esq.*; And this Practice was probably deduced, from the *Observations* made by several that digged in the Earth, who have found *Charcoal*, which they conjectur'd might have lain there about 100 Years, (nay, *Esq. Evelyn* says 1500 Years; see above in the fore-going Number), and yet was not in the least inclin'd to *Putrefaction*, but was very firm and solid; which plainly demonstrates, That *Timber* thus calcin'd, will resist *Putrefaction* much longer than it can do without it.

This of burning the ends of *Posts*, is also practis'd in *Germany*, as appears by the Abstract of a Letter, written by *David Von-der beek* a *German Philosopher*, and *Physician* at

*Minden*, to *Dr. Langelot*, registred in the *Philosophical Transactions* Num. 92. Page 585, in these Words: Hence also, they slightly burn the Ends of *Timber* to be set in the Ground, that so by the Fusion made by Fire, the *Volatile salts*, (which by accession of the Moisture of the Earth, would easily be consum'd, to the Corruption of the *Timber*) may catch, and fix one another.

VI Of closing the *Chops*, or *Clefts* in green *Timber*] *Green-timber* is very apt to split and cleave after 'tis wrought into Form, which in fine Buildings is a great Eye-sore. But to close the *Chops*, and *Clefts* in *Green Timber*, I find this Expedient. To anoint and supple it with the Fat of *Powder'd-beef Broth*, with which it must be well soak'd, the Chasms fill'd with *punges* dip'd into it; this to be done twice over. Some *Carpenters* make use of *Grease* and *Saw-dust* mingl'd; but the first is so good a way, (says my Author) that I have seen *Wind-shock timber* so exquisitely clos'd, as not to be discerned where the Defects were. This must be us'd when the *Timber* is green.

VII Of Measuring.] *Timber* is commonly measur'd and sold by the *Tun*, or *Load* which is a solid Measure, containing 40 or 50 solid Feet, viz. 40 Feet of round *Timber*, and 50 Feet of hewn *Timber* is call'd a *Tun*, or *Load*; which Denomination, (I conceive) it receives from the Supposition, that 40 Feet of round *Timber*, or 50 Feet of hewn *Timber* weighs about

about a *Tun Weight*, (*i. e.* 20 Hundred,) which is commonly accounted a Cart-load. Now

For measuring of round Timber the Custom is, to gird the Tree about in the middle of the length, and folding the Line twice (to take a quarter of it,) they account that for the true side of the square; then for the length, 'tis counted from the But end of the Tree, so far up as the Tree will hold half a Foot girt, (as they phrase it) *i. e.* The Line half a Foot, when twice folded.

The Dimensions thus taken, the Timber may be measur'd either by multiplying the side of the square in it self, and that Product by the length, by the Method of *Cross-Multiplication*, (See *Cross-Multiplication*) or more easily and speedily by *Gunter's Line*, by extending the Compasses from 12 to the side of the Square in Inches; for that Extent turn'd twice (the same way) from the length in Feet, will reach to the Content in Feet.

If the Tree have any great Boughs, which are Timber. (as they phrase it) *i. e.* which will hold half a foot Girt; they commonly measure them, and add them to the whole: The Solidity of the whole being thus found, they divide it by 40, which brings it into Tuns.

But (it is noted:) If round Timber be measur'd in order for Sale; they commonly (for Oak) cast away an Inch out of the Square for the Bark; [*i. e.* if a Tree be 10 Inches Square, they measure him as if he were

but 9] but for *Ash*, *Elm*, and *Beech*, an Inch is too much to be allow'd for the Bark. (2.) That this way of taking  $\frac{1}{4}$  of the Circumference for the true Square, is erroneous, and always gives the Solidity less than the Truth, by about a fifth part.

For measuring *hewn* or *squar'd* Timber their Custom is to find the middle of the length of the Tree, and there to measure the breadth of him, by clapping two Rules, or other straight Things, to the sides of the Tree, and measuring the Distance between them, and in the same manner they measure the breadth the other way; which, if they are unequal, they add them together, and take half their Sum, which they account the true side of the Square.

The Dimensions thus taken, it is measur'd in the same manner as round Timber. So the Content being found in Feet, they divide it by 50 to bring it into Tuns.

But 'tis to be noted. (1) That if the Timber be unequal sided, this Method of taking the Dimensions, always gives the Content more than the Truth, and the greater is the Difference of the Sides, the greater is the Error. (2.) That tho' the Method of taking the Dimensions, both of square, and round Timber, are both erroneous, yet Custom has made them currant.

VIII. *Price of Felling and Hewing.* Carpenters about us in *Suffex*, and *Kent*, have about 1 s. or 1 s. 2 d. per Load for  
S 4 felling



felling of Timber, and about  
3 s. per Load for hewing.

IX. *How much to a Square of Framing.*] Mr. Leybourn tells us That 20 Foot of solid Timber, (cut into convenient Scantlings) will compleat a Square (*i. e.* 100 superficial Feet) of Framing in any Building, great or small I mean, (*says he.*) of the Carcass, *viz.* the outside Frame, Partitions, Roof and Floors.

X.—*Buildings, of facing with Brick.*] See *Facing*; also see *Brick*, Num. 9.

*Tinea*, or rather *Tania*.

As List. See *Plat-band*.

*Tondino*,

As *Astragal*.

*Top-beam*,

As *Coller-beam*.

*Torus*.

A large round Moulding in the Bases of Columns; the Word comes from the Latin *Torus* a Bed; the Figure of this Moulding being not unlike that of the Edge of a Quill.

*Torsels*,

As *Tassels*.

*Trabeation*.

Same as *Entablement*, which see.

*Trammel*.

An Iron moving Instrument in Chimneys, whereon they hang the Pot over the Fire.

*Transom*.

1. *What.*] The piece that is fram'd across a double Light-window.

2. *Windows.*] Transom-windows in great Buildings, are worth making (*says Mr. Wing*) 1 s 9 d. per Light, or 7 s. per Window.

*Traverse*.

A Term in Joynery, signifying to plain a Board, (or the like) across the Grain.

*Traverse-tile*.

See *Tile*, Num. 10.

*Triglyph*.

A Term of *Architecture*. The Word is originally Greek, and signifies a hollow Grooving like three Furrows, or Gutters. In *Architecture*, Triglyphs are those kind of Stops, (in the Dorick Freeze) between the Metops. See *Metops*.

*Trim*.

When Workmen fit a piece into other Work, they say they *trim* in a piece.

*Trimmers*.

In *Architecture*, are those pieces of Timber fram'd at right

right Angles to the Joysts, against the Ways for Chimneys, and Well-holes for Stairs.

### *Trochilus.*

See *Capital*, Num. 4.

### *Trunk.*

From the Latin *Truncus*, signifies the Fust or Shaft of a Column, and the Die of a Pedestal.

### *Turn'd-lead.*

See *Lead*, Num. 10.

### *Tuscan-Order.*

See *Column* and *Order*.

### *Tusk.*

A Bevel Shoulder, made to strengthen the Tenon of the Joyst which is let into the Girder.

### *Tiles.*

I. *What.* What they are every one knows: Yet Bishop Wilkins defines them to be a sort of Artificial Stones, (of a laminated Figure,) us'd about the Roofs and Pavements of Buildings.

They are made of Clay, kneaded together, then squeez'd flat in a Mould, and then bak'd in a Kiln.

II. *Kinds of.* There are many kinds of Tiles, and those known by several Names; as *Plain*, *Thack*, *Ridge*, *Roof*, *Crease*, *Gutter*, *Pan*, *Crooked*, *Flemish*, *Corner*, *Hip*, *Dorman*,

*Dormar*, *Scallop*, *Astragal*, *Traverse*, *Parving*, and *Dutch Tiles*: Of which I shall treat in the following Numbers.

III. { *Plain*— } Of which  
          { or } I shall  
          { *Thack*— } give

1. *Their Description* ] They are the common or ordinary Tiles (of an Oblong Figure,) us'd about covering of Houses, &c.

2. *Their Dimensions.* ] By the Statute of the 17th of *Edw. Cap. 4th* Plain Tiles ought to be in length 10  $\frac{1}{2}$  Inches, in breadth 6  $\frac{1}{4}$  Inches, and in thickness half an Inch and half a quarter at the least. But by Observation, I find our *Suffex* Tiles to be of different Dimensions; for some I find to be 10 Inches long, 6  $\frac{1}{4}$  broad, and  $\frac{1}{8}$  of an Inch thick. Others I find to be but 9  $\frac{1}{2}$  Inches long, 5  $\frac{1}{4}$  broad, and about  $\frac{1}{2}$  an Inch thick.

3. *Their Weight.* ] Mr. *Leybourn* says, That one plain Tile weighs about 2 Pounds and  $\frac{1}{2}$ ; whence 100 of them will weigh 250 Pounds, and 1000 of 'em will weigh 2500 Pound. But by my Observations, one of the largest Size of those I measur'd, *viz.* (those of 10 Inches long) will weigh but about 2 Pound 3 Ounces, so that 100 of 'em will weigh about 220 Pounds, and 1000 of 'em about 2200 Pounds. And one of the other Size that I measur'd, weigh'd about 2 Pounds; so that 100 of 'em will weigh about 200, and 1000 of them about 2000 Pounds.

4. *Their*

4. *Their Price*] They are in some places dearer, and in others cheaper according to the Scarcity or Plenty of the Earth whereof they are made, and of the Wood wherewith they are burnt Mr. *Wing* says, They are from 2 to 3 s the Thousand in *Rutland-shire*; Mr. *Leybourn* says 25 s. the Thousand in *London*; but about us in *Sussex* they are sold from 15 to 17 s the Thousand.

IV.  $\left. \begin{array}{l} \text{Ridge—} \\ \text{Roof—} \\ \text{or} \\ \text{Crease—} \end{array} \right\}$  Of these I shall also give

1. *Their Description.*] These are such Tiles as are used to cover the Ridge of a House; they being made circular breadth-wise, like a half Cylinder.

2. *Their Dimensions.*] These, by the fore-mention'd Statute, should be in length 13 Inches, and in thickness the same with plain Tiles. I have measur'd some of these, and found one of them to be 13 Inches long, about 16 broad by the Compass on the outside, and in breadth (from side to side) on the inside about 11 Inches, some not above 9 or 10 Inches.

3. *Their Weight*] I weigh'd of these kind of Tiles, and found him to weigh about 8 Pounds  $\frac{3}{4}$ . Whence 100 of 'em will weigh about 875 Pounds, and 1000 about 8750 Pounds

4. *Their Price.*] In some Places, says Mr. *Leybourn* 5, 6, or 7 of these Tiles are allowed into every Thousand of plain

Tiles; but if bought by themselves, they are sold from 20 to 25 s. per Hundred. About us in *Sussex*, they are sold at 2 d. per piece, or 16 s. the Hundred.

V.  $\left. \begin{array}{l} \text{Hip—} \\ \text{Corner—} \end{array} \right\}$  Of these I shall also give

1. *Their Description.*] These are to lie on the Hips, or Corners of Roofs. As to their Form, they are at first made flat like plain Tiles, but of a Quadrangular Figure, whose two sides are right Lines, and two ends Arches of a Circle, one end being a little Concave, and the other Convex, which Convex End is about 7 times as broad as the Concave End; so that they would be of a Triangular Figure, were not one Corner taken off. Then before they are burnt, they are bent (upon a Mould) in their breadth, after the Manner of *Ridge Tiles*. They have a Hole at their narrow end to nail them on by, and are laid with their narrow Ends upwards.

2. *Their Dimensions*] By the Statute above-mention'd, (Num. 111 §. 2) The Tiles ought to be 10  $\frac{1}{2}$  Inches long, with convenient thickness and breadth. I have measur'd some of 'em, and find them to be in length 10 Inches. in breadth (according to their Compass) at the narrow end two Inches, and at the broad end 14 Inches; and the Right-lined breadth at the broad end, about 11 Inches.



3. *Their Weight.*] I found the weight of one of these Tiles to be about 3 Pounds, and 3 or 4 Ounces; See Page, Num. 6.

§. 3.

4. *Their Price*] They are usually sold, (says Mr. *Leybourn*) at Three half-pence, or 2 *d.* per Tyle, or from 10 to 15 *s.* per hundred About us in *Suffex*, they are usually sold for Three-half-pence a piece, or 12 *s.* the Hundred.

VI. *Gutters*] Of these I shall also give.

1. *Their Description*] These are to lie in Gutters, or Valleys in cross Buildings. They are made like Corner-tiles, only the corners of the broad end are turn'd back again with two Wings; so that the broad end resembles the upper part of the Character for the *Sign Libra*. These have no holes in them, but are laid (with their broad ends upwards, and) without nailing at all.

2. *Their Dimensions.*] I suppose these are made in the same Mould as corner Tiles, for they have the same Dimensions on the out (or Convex) side. Their Wings (mentioned in the foregoing Section.) are each about four Inches broad, and 8 Inches long, pointing out short of the narrow end, about two Inches.

3. *Their Weight.*] These, (for the Reason mention'd in the foregoing Section.) are of the same weight with corner Tiles. So that 100 of either of these kinds of Tiles will weigh about 321, or 322 Pounds, and 1000 of them will weigh about 3210, or 3220 Pounds.

4. *Their Price*] They are of the same Price as corner Tiles, see above, Num. 5. § 4.

VII. { *Pan—*  
*crooked—* } Of these  
or I shall  
*Flemish—* } give

1. *Their Description.*] They are us d in covering of Sheds, Lean-to's, and all kind of flat roof'd Buildings. They are in the Form of an oblong Parallelogram, as plain Tiles; but they are bent (breadth-wise,) forward and backward in the Form of an S, only one of the Arches is at least three times as big as the other; which biggest Arch, or Hollow of the Tile is always laid uppermost, and the lesser Arch, or Hollow of another Tile, lies over the edge of the great Hollow of the former Tile. They have no Holes for Pins, but hang (on the Laths) by a knot of their own Earth.

2. *Their Dimensions.*] They are usually in length 14  $\frac{1}{2}$  Inches, and in breadth 10  $\frac{1}{2}$  Inches.

3. *Their Price.*] The Price of these Tiles in most places is about 7 or 8 *s.* the Hundred.

VIII { *Dormar—*  
or } Of these  
*Dorman—* } I shall give

1. *Their Description*] These Tyles consist of a plain Tyle, and a triangular piece of a plain Tile standing up at right Angles to one side of the plain Tyle, and this triangular Piece

at

at the broad end is about the breadth of the plain Tile ; and swept with an Arch of a Circle from the other end, which other end terminates in a point, or has no breadth ; and of these kind of Tiles there are two sorts ; for in some the triangular piece stands on the right, in others on the left side of the plain Tiles ; and of each of these there are again two sorts, for some have a whole plain Tile, others but half a plain Tile ; but of all these sorts, the plain Tile has two holes (for the Pins) at that end where the broad end of the Triangular piece stands.

2. *Their Use* ] They are used to be laid in the Gutters betwixt the Roof and the Cheeks, or sides of the Dormars, the plain Tile part lying upon the Roof, and the Triangular part standing perpendicularly by the Cheek of the Dormar. They are excellent to keep out the Wet in those Places, which 'tis very difficult to do without either *them*, or some Sheet-lead. These Tiles are much us'd in some parts of *Staffs*, the Bricklayers not caring to do any Healing (where there are Dormers) without 'em ; tho' to my Knowledge, in some parts of *Kent*, they know not what they are ; and I believe they are ignorant of them also in most other parts of *England* ; For I never saw any Author that so much as mention'd them.

3. *Their Dimensions*.] As to their Dimensions, the plain Tile part is of the same Dimensions as a plain Tile, both as

to its length and breadth ; the triangular Part is of the same length, and its breadth at one end 7 Inches, and the other Nothing.

4. *Their Weight*.] I have weigh'd one of these Tiles, and found him to weigh about  $4\frac{1}{2}$  Pounds ; whence 100 of them will weigh about 450, and 1000 about 4500 Pounds : This was a whole one, as  $\frac{1}{2}$  one weigh'd 3  $\text{lb. } 2\frac{3}{4}$ .

5. *Their Price*.] They are commonly sold at Three-half-pence, or 2 *d.* per piece, or 12 or 16 *s.* the Hundred.

IX { Scallop — } Of these  
or  
Astragal — } I shall give

*Their Description*.] These are in all Respects like plain Tiles, only their lower Ends are in the form of an *Astragal*, viz. a Semicircle with a Square on each side. They are in some places us'd for Weather-tyling, and look very handsome.

I have not yet learn'd their Price, Weight, or Dimensions ; but I think the latter is the same as plain Tiles.

X. *Travers* ] These Tiles are (by our common Bricklayers) call'd *Travis*, or *Travas Tiles* ; but I suppose it should rather be *Travers Tiles* ; for the word *Travers* is perfect French, signifying Irregularity ; and these Tiles, which they call *Travers Tiles*, are only irregular plain Tiles, viz. Such as have the Pin-holes broken out, or one of the lower Corners broken off. These they lay (with the broken ends upwards) upon Rafters,

Rafters, where pinn'd Tiles cannot hang.

XI. *Paving.*] These are by some call'd *Paving Bricks*; see *Bricks*, Num. 3. §. 10.

XII. *Dutch.*] Of these I shall give

1. *Their Description*] Of these there are two Kinds, which I shall distinguish by the Appellations of ancient and modern: The ancient Dutch Tiles were us'd for Chimney-foot-paces: They were painted with some antick Figures, and sometimes with the Postures of Soldiers, &c. And sometimes with Compartments, and in them some irregular Flourishes; but in general they are nothing so well done, (nor with so lively Colours) as the Modern ones. The modern Dutch Tiles are commonly us'd instead of Chimney-corner-stones, (being plaister'd up in

the Jambs, (see *Corner-stones.*)

These Tiles seem to be better glazed, and those that are painted, (for some are only white,) are done with more curious Figures, and more lively Colours than the ancient ones: But both these sorts seem to be made of the same whitish Clay as our white glazed Earthen Ware. The modern ones are commonly painted with Birds, Flowers, &c. and sometimes with Histories out of the *New Testament*.

2. *Their Dimensions.*] Those which I call Ancient Dutch Tiles, are  $5 \frac{1}{4}$  Inches square, and about  $\frac{3}{4}$  of an Inch thick. The modern Dutch Tiles are  $6 \frac{1}{2}$  Inches square, and  $\frac{3}{4}$  of an Inch thick.

3. *Their Weight*] I have weigh'd some of both these sorts of Tiles, and I found one of

the { Ancient } sort to weigh {  $1 \frac{1}{4}$  Pound, } whence 100  
           { Modern } sort to weigh {  $1 \text{ lb. } 3 \text{ Ounces}$  }

of them will weigh {  $125 \text{ lb.}$  and 1000,  $1250$  } Pounds  
                                   {  $169 \text{ lb.}$  and 1000,  $1690$  }

XIII. *Method of Making and Burning.*] Tiles, (says Mr. *Leybourn*) are made of better Earth than Brick-earth, and something near the Potters Earth. According to the Statute of 17 Edw. 4. Cap. 4. Earth for Tiles should be cast up before the first of November, shired and turned before the first of February, and not made into Tiles before the first of March, and should likewise be tried and sever'd from Stones, Marle, and Chalk.

In *Suffex* and *Kent*, Tiles are commonly made of a kind of Clay: As to the particular Method of making them, I must omit it, as foreign to my Purpose. But for the Method of burning them, see *Bricks*, Num. 5. where you will find it at large.

XIV. *Price of Making and Burning.*] For making 1000 of plain Tiles, (says Mr. *Leybourn*) 2 s. or 2 s. 6 d. is the usual Price: But I know not how, or where he means; for an experi-



experienced Workman tells me, That for casting the Clay, and shireing it, and making it into Tiles, and burning them, they have 6 s. per 1000.

XV. *How many will cover a Square*] This is various according to the width they gage for the Laths: At 6 Inches Gage, about 800 will cover a Square; at 6  $\frac{1}{2}$  Inch Gage, 740 Tiles will cover a Square; at 7 Inch Gage, 690; at 7  $\frac{1}{2}$  Inch Gage 640, and at 8 Inch Gage 600 Tiles will cover a Square, or 100 superficial Feet. These Numbers suppose the breadth of the Tiles to be 6 Inches; for (if they are Statute Tiles) they will be thereabouts when they are burnt, allowing  $\frac{1}{4}$  of an Inch for their shrinking with burning. If your Tiles are broader than 6 Inches then fewer will cover a Square, if they are narrower there must be more.

### Tiling.

1. *What*] By Tiling, is meant the covering the Roof of a Building with Tiles.

2. *Of Measuring*] Tiling is measur'd by the square of 10 Foot, i. e. 100 superficial Feet. And in taking their Dimensions, they measure to the middle of the Gutters, Corners, and Ridge tiles; and having cast up the Area, they have a Custom to make an Addition for all hollow Ware, (as they call Ridge-tiles, Corner, Gutter, and Dormer-tiles,) and this Addition (I think) is in London one superficial Foot for every such Foot of such hollow Ware. But I am sure, in some parts of Spain 'tis the Custom to reckon one superficial Foot for every such

Tile; 100 of which they reckon one Square of Work, and add it to the Area before found.

3. *Price of—*] Tiling is commonly done by the Square, which in new Work, (says Mr. Leybourn) and the Workman finding all Materials, as Tiles, Mortar, Laths, and Nails, is usually valu'd at 30, or 32 s per Square. (Mr. Hatton reckons but 28 s. per Square.) And for ripping of old Work, and new Covering, and making good the old, they reckon 12 or 14 s. the Square, according as they find the old Tiling.

But for Workmanship only they reckon for new Work 5 s. per Square at London, in the Country various. Mr. Wing says, 3 s. in Rutland, in some places, says he 2 s. 6 d. In several parts of *Suffex*, I know 'tis commonly done for 3 s. per Square, and I am inform'd (at second hand) that in some parts of *Kent* they do it for 2 s. 6 d. per Square; but then their Tiles are large, and they lath wide, at 8 Inches Gages, and pin but half their Tiles, the other half they lay Travers Tiles.

And for Ripping, and Healing again, (only Workmanship) our *Suffex* Bricklayers reckon 3 s. 6 d. per Square, and if they Counter-lath it, then 3 s. 9 d. or 4 s. But in some parts of *Kent*, they Rip, and Heal, and Counter-lath, for 3 s. per Square, which is very cheap; but then 'tis suppos'd their Work is done accordingly.

4. *Laths and Nails to a Square of—*] For the number of Laths and Nails, commonly allow'd

to a Square of Tyling. See Laths, N. 8, and Nails, N. 23.

5. *Mortar to a Square of*—] Mr. *Leybourn* says, That about a quarter as much Mortar as is allow'd to a Rod of Brick-work, will do for a Square of Tyling. See Mortar, N. 12.

6. *Pins to a Square of*—] Mr. *Leybourn* says, They usually allow a Peck of *Tyle pins* (from 2 s. to 4 s. the Bushel) to every Thousand of Tyles; but surely this must be a Mistake, for an Experienced Workman tells me, He uses but about a Peck of Pins to three Square of Healing, which at seven Inch Gage, (the size he commonly Gages) is more than enough for 2000 Tyles. And I think this Workman told me he reckon'd *Tyle pins* at 6 d. per Gallon.

7. *Without Mortar*—] Some lay Tyles without Mortar, or any thing else, laying them dry as they come from the Kiln. Others lay them in a kind of Mortar made with Lome and Horse-dung, (See Mortar, N. 20.) In some parts of *Kent* they have a way of laying Tyles in Moss; when the Workmen get the Moss themselves, they are allow'd 2 d. in a Square the more for their Work. But an old Workman of theirs condemns this way of Tyling with Moss; for he tells me, That in windy wet Weather, when the Rain, Snow, or Sleet is driven under the Tyles (in the Moss) if there follow a Frost while the Moss is wet, it then freezes and raises the Tyles out of their Places.

8. *With Pan-tyles.*] These Tyles are for the most part laid dry without any Mortar; yet sometimes pointed within side.

The Laths whereon they hang, are 10 or 12 Foot long, an Inch and an half broad, and an Inch thick. They are usually sold at 2 d. or 3 d. the Lath, or at 10 or 13 s. the Hundred.

The Gage for nailing on these Laths (with 4 d. Nails) is ten Inches and an half, and the breadth of a Tile when laid eight Inches; whence about 170 Tiles will cover a Square, (or 100 Foot) of this kind of Tiling.

A great Covering with these, spends but little Mortar (if pointed) and but little Time in laying. Mr. *Wing* reckons it worth about 1 s. 8 d. per Square, Workmanship.

9. *Of its Weight.*] See *Horsesham-stones*, N. 4.

### Valleys.

THE Gutters over the Sleepers in the Roof of a Building. See Gutters.

### Vestible.

Among the Ancients was a large open Space before the Door, or at the Entry of a House which they call'd *atrium Populatum & Vestibulum*, being dedicated, as *Martius* tells us, to the Goddess *Vesta*, whence he will have the word derived, i. e. *Vestæ stabulum*, it being

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being usual for People to stop here, before they went within Doors. The word may likewise be derived from the *Latin Vestis*, a Garment, and *ambulare* to walk; because the Vestible in the modern Houses being an open Place at the bottom of a large Stair-case, serving as a Thorough-fare to the several Parts of the the House, 'tis here that the Robes are first let fall in Visits of Ceremony. *Vestible* is also sometimes used to signify a little kind of Anti-chamber before the Entrance of an ordinary Apartment.

### *Vault.*

Is a Piece of Masonry, arch'd without-side, and supported in the Air by the Artful placing of the Stones which form it; its principal Use being for a Cover or Shelter. The chief Vaults in a Building are call'd Master-Vaults, to distinguish them from the other less considerable ones, which only serve to cover Gates, Windows, Passages, &c. Double Vaults are those which are built over another, to make the Beauty and Decoration of the Inside, consistent with that of the Outside: A Chasm or Vacancy being left between the Convexity of the one, and the Concavity of the other; Instances of which we have in the Dome of St. Peter's at Rome, St. Paul's in London, and in that of the *Invalides* of Paris.

### *Under-pinning.*

1. *What.*] By this Term is meant, the bringing it up with Stone under the Ground-fells of a Building. Sometimes it signifies the Work it self, when done.

2. *Price of*] In several parts of *Sussex*, I know the usual Price (for the Workmanship only) is 1 *d.* per Foot Superficial. In some Parts of *Kent* they have three Half-pence per Foot. In some places 'tis the Custom (in Measuring it) to take in half the Sell into their Measure.

### *Volute.*

From *Volvo* to fold, is one of the principal Ornaments of the Ionick and Composite Capital representing a kind of Bark wreath'd or twisted into a Spiral Scroll. There are eight angular *Volutes* in the *Corinthian Capital*, and these are accompanied with eight other little ones, call'd *Helices*.

### *Urn.*

Comes from the *Latin, Urna*, a Vessel to draw Water in, and signifies a low wide Vase, serving as a Crowning over Ballustrades, (and has an Attribute to Rivers, River-Gods, &c. in the Grotto's and Fountains in Gardens. A Funeral *Urn* is a kind of cover'd Vase enrich'd with Sculpture, and serving as the Crowning, or Finishing of a Tomb, a Column, Pyramid, or

or other Funeral Monument; made in imitation of the Ancients, who deposited the Ashes of their deceased Friends in this kind of *Urn*.

### *Voussoirs.*

The Stones that form the Arch: A *French* Word.

### *Wainscot,*

**T**HE Pannel'd Work round (against the Walls of) a Room.

### *Wainscotting.*

1. *What.*] the making, and setting up of Wainscot is called *Wainscotting*.

2. A *Note* in—] Some Joiners, (as I am inform'd) put Charcoal behind the Pannels of their Wainscot, to prevent the Sweating of Stone and Brick-walls from unglueing the Joynts of the Pannels, which otherwise, (especially in some places) 'tis very apt to do; and others make use of Wool in the same manner, and for the same purpose; yet neither of these ways will prevent their unglueing in some Houses: But the most effectual way to prevent it, is by priming over the Back-sides of the Joynts well with *White-lead*, *Spanish-brown*, and *Linseed-oyl*.

3. *Of Measuring.*] Wainscot is generally measur'd by the Yard square, i. e. nine Superficial Feet. Their Custom is to take the Dimensions with a

String, pressing it into the Mouldings; for they say, (and 'tis but Reason) we ought to be paid for all where the Plain goes.

Therefore when Joiners would take the Dimensions of a Room they have Wainscotted; they take up a Line on the top of the corner of the Room, and as they carry it down to the bottom, they press it (with their Fingers) into all the Mouldings; this they account the *breadth*, and (they measure) the Circumference of the Room from the *length*: Some Joiners will measure this also with a String, but others do not. The Dimensions being thus taken in the Feet, they multiply the length by the breadth, and the Product is the Content in Feet; which being divided by 9, the Quotient is the Content in Yards, But.

*Note*, (1.) That you must make Deduction for all *Window Lights*, and measure the *Window boards*, *Cheeks*, and *Sap-pheta's* by themselves.

(2.) That for *Window-shutters*, *Doors*, and such things as are wrought on both sides, they reckon *Work and half*; for indeed the Work is half more.

(3.) That *Cornices*, *Bases* and *Sub-bases* are sometimes measur'd by the Foot, Lineal Measure; so also are *Freezes*, *Architraves*, and *Chimney pieces* measur'd; unless agreed for by the Great.

(4) *Price of*—] The Price of *Wainscotting* is various, according to the Variety of *Stuff* and *Workmanship*.



**Wainscotting with Norway Oak**, the Workman finding Stuff, is worth 6 or 7 *s. per Yard*. The Workmanship only is about 2 *s.* in *London*, in *Rutland* 3 *s.* 6 *d.* or 4 *s. per Yard*; and if the Mouldings are large, 5 *s.* says Mr. *Wing*.

**Plain-square Wainscotting**, (the Workman finding Deal) is worth 3 *s.* or 3 *s.* 6 *d. per Yard*. For only Workmanship about 1 *s. per Yard*.

**Ordinary Bisection Wainscotting**, (the Workman finding Deal) is worth in *London* 3 *s.* 6 *d.*; in the Country, 4 *s.* 6 *d. per Yard*. The Workmanship only about 1 *s.* 6 *d. per Yard*.

**Large Bisection-work** is worth 6 or 7 *s. per Yard* of *Dantzick Stuff*.

5. Of *Painting of Wainscot* ] See *Painting*.

### Walls.

**I. What.]** By this Term in Architecture is meant the *Inclosures* of whole Houses, or particular Rooms; as also of Gardens, Orchards, &c. if made of Brick or Stone. Walls are either entire and continual, or intermitted; and the Intermissions are either Pillars or Pylasters

**II Kinds of--]** There are several kinds of Walls. distinguishable by different Names, according to the substance whereof they are made, as *Plaster'd* or *Mud-walls*, *Brick-walls*, *Stone-walls*, *Flint*, or *Boulder-walls*, and *Boarded-walls*; of all which I shall discourse in the following Numbers.

**III. Plaster'd, or Mud —.]** These kind of Walls are common in Timber Buildings, especially of ordinary Buildings; for sometimes the Walls are made of Brick betwixt the Timber: But this is accounted no good way; because the Mortar corrodes and decays the Timber.

These *Mud-walls*, (as they are call'd in some places) are thus made. The Walls being quarter'd and lathed between the Timber, (or sometimes lathed over all) are Plaster'd with *Lome*, (See *Lome*, also, see *Mortar*, N. 8. and 11.) which being almost dry is Plaster'd over again with *white Mortar*, (See *Mortar*, N. 4.)

This kind of Work is commonly measur'd by the Yard. For the Price of it, See *Pargetting*, N. 2. and *Plastering*, N. 1.

**IV. Brick—.]** Here I shall say something.

**1. Of Building them]** And here are several things to be consider'd and taken notice of; as first, That all *Walls* ought to be most exactly Perpendicular to the Ground-work; for the right Angle (thereon depending) is the true cause of all *Stability*, both in Artificial and Natural Position, a Man likewise standing firmest when he stands uprightest.

*Secondly*, That the massiest and heaviest Materials be the lowest, as fitter to bear than to be born.

*Thirdly*, That the *Walls* as they rise, diminish (proportionally) in thickness, for ease both of Weight and Expence.

*Foruthly*,

*Fourthly*, That certain Courses, or Ledges of more strength than the rest, be interlay'd, like Bones, to sustain the Fabrick from total Ruin, if the under-parts should decay.

*Fifthly*, That (all along) care be taken in laying the Bricks, concerning which, see *Bricks*, N. 8.

*Sixthly*, That the Angles be firmly bound, which are the Nerves of the whole Edifice; and therefore are commonly fortify'd by the *Italians*, even in their Brick-buildings, on each side of the Corners, with well squared Stone, yielding both Strength and Grace.

*Seventhly*, In working up the Walls of a Building, do not work any Wall above three Foot high before you work up the next adjoining Wall, that so you may joyn them together, and make good Bond in the Work: For 'tis an ill Custom among some Bricklayers, to carry, or work up a whole Story of the Party-walls, before they work up the Fronts, or other Work adjoining, that should be bonded, or work'd up together with 'em, which occasions cracks and setlings in the Walls.

*Eighthly*, That if you build (a House) in the City of *London*, you must make all your Walls of such thicknesses, as the *Act of Parliament* for Re-building of the said City enjoyns; (which *Act* you may see in *House* N. 4.) but in other places you may use your Discretion; yet for some Directions in this Matter. See *House*, N. 3.

*Ninthly*, It may be worth your Notice, that a Wall of a

Brick and half thick, with the Joynt, will be in thickness 14 Inches, or very near; whence 150, or 160 Bricks will lay a Yard Square measur'd upon the Face of the Building, and to the Square of 10 Foot (which is 100 square Feet) are usually allow'd 1700, or 1800 Bricks, and 4600, or 5000 Bricks will compleatly lay, erect, or build one Rod, Pole, or Perch square; which Rod, Pole, or Perch, (for by all these Names 'tis call'd) contains in length, (according to the Statute) 16  $\frac{1}{2}$  Feet; whose Square is 272  $\frac{1}{4}$  Feet, superficial Measure, which is 30 Yards and a quarter.

But tho' I have here laid down the number of Bricks for each of these Squares, yet these Numbers are not to be rely'd on as absolutely exact; for no exactness can be discover'd as to this Particular, and that for several Reasons: For tho' the Bricks were all made in the same Mould, and burnt in the same Kiln, or Clamp; yet the Nature, or Quality of the Earth whereof they are made, (whereby some shrink more than other some) and the Bricklayers Hand and Mortar, may cause a considerable Variation, and besides some Bricks are warp'd in burning, (whereby they will not lie so close in the Work) some miscarry, (or are broken) in every Load, or 500 Bricks and the Tally, or Tale is (for the most part, if not lock'd after) too little: And besides all these Uncertainties, when Bricks are dear, and Lime cheap, the Work-

man (by the Great) will use more Mortar, and make the ampler Joynts, which is much worse for the Building.

*Tenthly*, It may be also noted, That (when all Materials are ready) a Workman with his Labourer will lay in one Day 1000 Bricks, and some 12 or 1500.

*Eleventhly*, All Brick-work, according to these Rules, is suppos'd to be one Brick and half thick, which is the Standard Thickness. If they are thicker, or thinner, they must be reduc'd to that thickness, as shall be shewn how in the next Section of this Number.

I. *Of Measuring them* ] Brick-layers most commonly Measure their Walls by the Rod square, each Rod, Pole, or Perch, (for by all these Names 'tis call'd) being (by the Statute)  $16 \frac{1}{2}$  foot long; so that a square Rod contains  $272 \frac{1}{4}$  Superficial Feet.

Therefore, having taken the Dimensions, (*viz.* the length, and height) of a Wall in Feet, multiply the length by the height, (See Cross-multiplication, N. 2.) and divide the Product by  $272 \frac{1}{2}$ , and the Quotient shews the number of square Rods in the Superficies of that Wall. But it being troublesome to divide by  $272 \frac{1}{4}$ , Workmen commonly have a Custom to divide 272 only, which gives the Content something more than the Truth, which notwithstanding they take for it.

Having thus found the Area, or Content of the whole Superficies of a Wall, they next consider its Thickness; for they have a certain Standard Thickness, to which they re-

duce all their Walls, and this Standard is *one Brick and a half thick*, as they phrase it, (*i. e.* the length of one Brick, and the breadth of another, so that a Wall of three Bricks (length) thick of the same height and length with another of  $1 \frac{1}{2}$  Brick thick, the former will contain twice as many square Rods as the latter.

Now, to reduce any Wall to this Standard thickness, take this plain and easie Rule: Say, as 3 is to the thickness of the Wall in half Bricks, [that is in the breadth of Bricks, the breadth of a Brick being always half its length,] so is the Area before found, to the Area at their Standard thickness of  $1 \frac{1}{2}$  Brick.

Thus, If the Wall be all of one thickness from the Foundation to the top, it is easily reduc'd to the Standard Thickness of  $1 \frac{1}{2}$  Brick. But if the Wall be of different thicknesses (as in Brick Houses they commonly are, being made thickest below, and thinner at every Story;) then the best way is to measure every different thickness by it self, and reduce it to the Standard thickness; then add all these several Area's into one Sum, out of which deduct the Doors and Windows (measur'd by themselves,) and so the Remainder will be the true Area, or Content of the whole Wall.

See more (concerning measuring of Brick-walls.) N. V. of this Word, *viz.* in Fence-walls. Also see *Brick-work*.

*Note*, In some Places 'tis the Custom to measure by the Rod of 18 Foot long, in others by the



the Rod of 16 Foot : In the former Case, you must divide the Area in Feet by 324, in the latter by 356.

3. *Of their Price.*] The Price of Building of Walls is various in different Places, according to the various Prices of Materials. Mr. *Leybourn* says, (and with him agrees Mr. *Hatton*,) that the usual Price in *London*, for building a Brick and half Wall, (the Workman finding all Materials) is five Pound, or five Pound ten Shillings per Rod square. And for the Workmanship only 30 s. per Rod square, which is about 1 s. per Yard square.

Mr. *Wing* says, That the usual Price in *Rurland* (the Workman finding all Materials) is for a Brick and half Wall 3 s. per Yard square, [which is but about 4 l. 10 s. per Rod] for a two Brick-wall 4 s. for a 2 ½ Brick-wall 5 s. per Yard Square. And for the Workmanship only (of a Brick and half Wall) 8 d. per Yard square, which is but about 20 s. per Rod, Statute Measure. So that you see Mr. *Wing*'s Prices are much cheaper than those about *London*; the Reason of which, I conceive proceeds from the Cheapness of Commodities in his Countrey.

About us in *Suffex*, a Rod of a Brick and half Wall, Workmanship and Materials, will cost at least eight Pounds. For the Workmanship only, the usual Price (about us) is 24, or 25 s. per Rod square in a Brick and half Wall.

It should seem, that in or about *London*, Workmen do

sometimes find only Mortar and Workmanship in building of Walls; for (says Mr. *Leybourn*) if the Bricks are laid in at the Builder's Charge, then 2 l. 10 s. per Rod is the usual Price. But (says he) to erect new Structures, by taking down old Walls, it may be worth 3 Pounds, or 3 Pounds 10 Shillings per Rod; because, in taking down the Walls, and clearing the Bricks, there is much Time spent, and also more Mortar us'd in laying them again, than in new Work.

V *Fence* — ] Walls built round Courts, Gardens, Orchards, &c. are commonly call'd *Fence-walls*. Of these, some are made of Stone, some of Flints, or Boulders, and some of Brick; Of the two former, I shall speak in the two following Numbers, viz. Num 6, and 7. Of the latter I shall speak here, and therein I shall say something

1. *Of their making*] These are commonly made (of Statute Bricks) a Brick and half thick

But in some parts of *Suffex* they are commonly made of a sort of great Bricks, which are 12 Inches long, 6 Inches broad, and 3 Inches thick. I have very often discours'd with the old Man who first introduced, not only those sort of *Great Bricks*, but also their necessary Concomitants, *Pilaster* and *Copeing Bricks*, and the Method of making *Fence-walls* of 'em, V. P. Bricks, Num. 3. §. 4. 9. and 13.

These Walls are but the breadth of a Brick, (or 6

Inches) in thickness, only at the Pilasters, where they are the length of a Brick, (or 12 Inches thick.) They usually set a Pilaster at every 10 Foot. I know a Wall of these sort of Bricks, (of about 9 Foot high) that has been built near 30 Years, and stands very well.

2. *Of measuring them.*] Fence-walls built of Statute Bricks, are commonly measur'd, as is taught above, Num. 4. §. 2. But I shall here add, That some Workmen that I know, measure them by the Rod in length, and one Foot in heighth, which they account a Rod of Measure. And in taking their Dimensions, they do it with a Line, going over the Pilasters; this for the length; so likewise for the heighth, they measure it (also) by a Line, going over all the Mouldings, (after the manner of Joyners measuring their Work) even to the top, or middle of the Copeing.

I shall further add, That some Workmen (in Fence-walls of Statute-bricks) will, (if they can persuade their Master to it) measure all that is above  $1 \frac{1}{2}$  Brick thick, (*viz* The projecting of the Pilasters, or Buttresses, and all below the Water-table) by the solid Foot, which afterwards they reduce to Rods. But this way is a considerable Advantage to the Workman, and a loss to the Master Builder; for it makes  $\frac{1}{2}$  part of Measure more than the Truth; because a Brick and half Wall is 14 Inches thick.

Fence-walls built of great Bricks, are generally measur'd by the Rod in length, and a Foot in heighth, (which they account a Rod of Measure,) the Dimensions being taken by a Line, as was said above.

3. *Of their Price.*] For the Price of Brick-walls, See (above,) Num. 4. §. 3. But some Workmen in *Sussex* reckon for building of Fence-walls, (the Workmanship only) of Statute Bricks (a Brick and half thick) 1 s. 6 d per Rod, at a Rod long, and a Foot high, taking their Dimensions by the Line, as was shewn how in the preceeding Section of this Number. Sometimes they build these kind of Walls by the Square of 100 Foot, at 8 s. per Square, which is but about 1 d per (Superficial) Foot.

For building of Fence-walls with great Bricks, the common Price (for the Workmanship only) is 1 s. per Rod, at one Rod long, and one Foot high, the Dimensions taken by the Line, as above.

4. *Of Copeing them*] Fence-walls built of Statute Bricks, are sometimes coped with Stone, sometimes with Brick: If the former, the copeing is left out in the Measure, and rated by it self; for the Price of which, see *Copeing*, Num 2. If the latter, it is measur'd into the rest of the Work. And this kind of Copeing is done thus; on one side the Wall is carry'd upright to the top, and on the other side there is two Courses of Bricks standing on end in an Oblique Reclining, or Slant Position, and a stretch-



a stretching Course on the top finishes the Wall

But Fence-walls built of great Bricks, are coped with coping Bricks, of which see Bricks, Num. 111. §. 3. And this Copeing is also measur'd and rated with the rest of the Wall.

VI. Stone.—] Stone-walls serve not only for Walls of Houses, &c. but also for Fence-walls round Gardens, &c. Of these I shall say something.

1. Of Measuring them ] These are in some Places measur'd by the Rod of 18 Foot Square: But in most Places (I think, they are measur'd by the Foot superficial. Concerning measuring of Walls, there are these three Things to be further taken notice of, viz. That if the length of the Walls at the ends (of Garden, or House,) be taken on the out-side (of Garden, or House,) then the length of the Walls on the sides (of the Garden, or House) ought to be taken on the inside. (2.) That when the Walls of a House are measur'd, the Doors and Windows are likewise to be measur'd, and deducted from the whole. (3.) That in Measuring Fence-walls, they commonly measure the height by a Line (press'd into all the Mouldings) from the top of the Copeing, to the bottom of the Foundation.

2. Of their Price. Mr. Wing tells us, That Fence-walls, and Walls of ordinary Buildings, are each (only the Workmanship) from 16 s. to 3 l. 10 s per Rod of 18 Foot

Square, which (says he) depends upon the Goodness of the Work. He also tells us, That the setting of Fronts in great Buildings, viz Ashlar, Architrave, Windows, and Doors, with the Ground-table, Fascia's, and other Members, is worth from 3 l. 10 s. to 5 l. per Rod, which (says he) depends upon the height, and well performing of the Building. The Truth is, I don't well understand what he means by all this Tattle; for he never tells us any thing of the thickness of the Walls; and besides 3 l. 10 s. per Rod, is but little above 2  $\frac{1}{2}$  d. per Foot; and 5 l. per Rod, is but little above 3  $\frac{1}{2}$  d per Foot; either of which is certainly too little for such Ornamental Work, as setting of Fronts in great Buildings. And then, for his Fence-walls, or Walls in ordinary Buildings; I can't see how the goodness, or badness of such plain Work can vary the Price from 16 s. to 3 l. 10 s. per Rod; but surely it must be very ordinary Work that is worth but 16 s. per Rod, which is but little above a Half-penny a Foot

Mr. Hatton talks much after the same manner; for, says he, one Foot of plain Work, (as Walls, &c.) is worth about 8 d working and setting. He mentions nothing of the thickness neither.

But I shall leave these Authors in the dark, as they have left us, and proceed to tell you, what some experienced Workmen in *Sussex* tell me; namely, That for building a 12 Inch



Wall, they have 2 *d.* per Foot: for an 18 Inch Wall 3 *d.* and for a Wall of two Foot thick, they have 4 *d.* per Foot. These Prices are to be understood of Walls that have two fair Sides; for if they have but one fair Side, (the other standing against a Bank,) they have a less Price; for in this Case, I have known some Workmen build a Wall two Foot thick, for 2 *d.*  $\frac{1}{2}$  per Foot.

VII. *Flint, or Boulder* — ] Walls of Flints, or Boulders, are much us'd in some parts of *Sussex* and *Kent*, where I have seen, not only Fence walls, round Courts, Gardens, &c. but also Walls of Stables, and other Out-houses built of them, which shew'd very handsome.

To build Walls and greater Works of Flint, whereof we want not Example in our Island, and particularly in the Province of *Kent* (says Sir *Henry Wotton*) is (as I conceive says he) a thing utterly unknown to the *Ancients*, who observing in that Material a kind of Metalical Nature, or at least a *Eusibility*, seem to have resolved it into nobler Use; an Art now utterly lost, or perchance kept up by a few *Chymicks*.

Some Workmen tell me, That for building of Flint, or Boulder Walls, they use to have 12 *s.* per Hundred, (for so they phrase it,) by which they mean 100 superficial Feet; but I forgot to ask them at what thickness, or whether they have but one thickness for all their Walls. They also tell

me, That a right and left handed Man fit well together for this sort of Work; for they have a Hod of Mortar pour'd down upon the Work, which they part betwixt them, each spreading it towards himself; and so they lay in their *Flints*. They also tell me, That their *Mortar* (for this Work) must be very stiff, and that 'tis best to have a good length of Work before 'em; for they work but one Course in height at a time; for if they should do more, it would be apt to swell out at the Sides, and run down. They also say, That in misty Weather 'tis very difficult to make the VWork stand.

VIII. *Boarded* — ] Sometimes VValls are boarded, particularly the VValls of some Barns, Stables, and other Out-houses. But of this kind of VVork, see VVeatherboarding.

### *Walling.*

The making of VValls (of what kind soever) is call'd *Walling*; therefore for the Price, &c. of *Walling*, see *Walls*.

### *Walnut-tree-painting.*

See *Painting*. Num. 4.

### *Wash house.*

A Room to wash in.

### *Water-table.*

In Stone, or Brick-walls, is a sort of Ledge left in the VVall, some 18 or 20 Inches,  
(more

(more or less) above the Ground, at which Place the thickness of the VWall is abated, (or taken in) on each side the thickness of a Brick, (in *Brick-walls*), namely, two Inches and a quarter; thereby leaving that Ledge, or Jutty, that is call'd a Water-table. These Water-tables are sometimes left plain, and sometimes they are wrought with Mouldings; if the latter, (besides the plain Measure of the Wall), they are rated at so much *per Foot*, running Measure.

### *Water-courses.*

These are commonly rated by the Foot running Measure, *viz.* If the VWorkman find Materials at about 10 *d per Foot*, if he find no Materials, at about 8 *d.*

### *Weather-boarding.*

1. *What*] A Term of Architecture, signifying the nailing up of Boards against a Wall, (see *VWalls*, Num. 8) Sometimes 'tis us'd to signifie the Boards themselves, when nail'd up. This VWork is commonly done with Feather-edg'd boards, (see *Feather-edg'd.*) In plain Work they nail the thick Edge of one Board, an Inch, or an Inch and half over the thin Edge of another: But if the Work is to be a little extraordinary, they set an O.G. on the thick Edge of every Board.

2. *Price*] The Price of plain Weather-boarding, (*viz.* fitting and nailing up the Boards) is from 8 *d.* to 12 *d.* the Square, according to the length and breadth of the Boards, and Conveniency of the Place. But if the lower, (*viz.* the thicker) Edge of the Boards be wrought with an O.G, it may be worth 18 *d. per Square.* This for the Workmanship only. But

If the Workman find the Materials, (*viz.* Boards and Nails,) it may be worth 12, or 13 *s. per Square*, or about three Half pence *per Foot.*

### *Weather-tyling.*

1. *VWhat*] Is the Tiling, (or Covering with Tiles) the upright sides of Houses.

2. *Price*] In some Places *Weather tiling* is done at the same Price as other plain Tiling. See *Tyling*, Num. 3. But in other Places they have more, in consideration of Scaffolding; for some Workmen tell me they have 4 *s. per Square* for Workmanship only.

### *Well-hole.*

The Hole left in a Floor for the Stairs to come up through.

### *White-Painting.*

See *Painting*, Num. 7.

### *Wind-beam.*

The same as Collar-beam.

### *Windows.*

## Windows.

1. *What*] Every one knows that Windows are those parts of a Building that are made to let in the Light.

2. *Situation of—*] Concerning the Situation of Windows, observe, first, that they be as few in number, and as moderate in Dimensions, as may possibly consist with other due Respects: For in a word, *all Openings are Weakenings*. Secondly, Let 'em be placed at convenient Distance from the Angles, or Corners of the Building; because that part ought not to be open and infeeble, whose Office it is to support and fasten all the rest of the Building. Thirdly, Before take great care that all the Windows be equal one with another in their Rank and Order; so that those on the right Hand may answer to those on the left and that those above may be right over those below; for this Situation of Windows, will not only be handsome and uniform, but also the *void* being upon the *void*, and the *full* upon the *full*, 'twill be a great strengthening to the whole Fabrick.

3. *Dimensions of—*] In making of Windows, you must be careful, not to give them *more*, or *less* Light than is needful, that is, make them no *bigger*, nor less than is convenient; wherefore you ought to have regard to the bigness of the Rooms that are to receive the Light; it being evident, that

a great Room has need of greater Light, and consequently of a greater Window, than a little Room, & *à contra*.

The Apertures of Windows in middle siz'd Houses, may be  $4\frac{1}{2}$ , or 5 Foot between the Jambs, and in greater Buildings they may be  $6\frac{1}{2}$ , or 7 Foot, and their height may be double the length at the least. But in high Rooms, or larger Buildings, their height may be a third, a fourth, or half their breadth more than double their length.

These are the Proportions for Windows of the first Story, and according to these must all the rest of the Windows in the upper Stories be for their breadth; but for their height they must diminish: For the second Story may be one third part lower than the first, and the third Story one fourth part lower than the second.

4. *Price of making.*] Window-frames are usually agreed for by the Light, (says Mr. *Leybourn*) so that if a Window have four Lights, and it be double rabitted, (as the Workmen call it) it may be worth 12 s. that is 3 s. a Light for Materials and VVorkmanship. But if the Builder find Timber and Sawing, then 1 s. a Light is fair.

Transom-windows, (says Mr. *Wing*) are worth making (for great Buildings) 1 s. 9 d. per Light, or 7 s. per Window. Some Workmen tell me, they make 'em for 12 d. 14 d. 16 d.



or 18 *d.* per Light, according to their bigness.

Luthern Windows, says Mr. Wing, the making and setting up, are valu'd from 9 to 14 *s.* per Window, according to their bigness. Some Workmen tell me, that (if they saw the Timber) they commonly have 20 *s.* per Window.

Shop Windows, (says Mr. Leybourn) will be afforded at the same Rate as plain or batton'd Doors. See *Doors*.

5. *Price of Painting*] The Painting of Widow-frames, (says Mr. Leybourn) is not usually measur'd, but valu'd at 3 *d.* 4 *d.* or 6 *d.* per Light, according to their bigness, and Casements at three Half-pence or 2 *d.* per piece, and Iron-barrs at 1 *d.* or more, if very large See *Painting*.

### Withs.

These are us'd by Thatchers to bind their Thatching-rods to the Rafters. They are commonly sold at 6 *d.* the Hundred, and a Hundred of 'em will do about three Square of Thatching; for some Workmen tell me, That they use about 33, or 34 Withs, and as many Thatching-rods, (which are of the same Price with the Withs) in a Square; for they bind down their Straw at every Foot, or thereabouts, viz. at every other Lath; (for they Lath but 2 Laths in a Foot,) and each Course of Thatching (bound down with one length of Rods.) is about three Foot in breadth.

### Xystos.

Among the Ancient Greeks was a *Portico* of uncommon Length, either covered or open, wherein the *Athletæ* used to exercise themselves in running Races and Wrestling. The word is derived from *Xyein*, to polish, it being their custom to anoint their Bodies with Oil before the Encounter, to prevent their Antagonists from fastning Hold of them. The Romans too, had their *Xystus*; which was a long *Isle* or *Portico*, sometimes roofed over, and at other times open, and ranged on each side with Rows of Trees, forming an agreeable Place for the People to walk in.

### Zoccolo.

THE same as *Plinth* It is an Italian word, and signifies a sort of wooden Shoes or Sandals: From the Latin, *Soccus*, the Buskin wore by the ancient Actors. In *Architecture* it is a square Body, less in Height than Breadth, and placed under the Mouldings of the Bases of Pedestals, &c. not under the Bases as Perrault's Translator has it. It is call'd in English, *Socle* or *Zocle*

### Zopheros.

*Zophoros.*

The same as *Freeze* A large flat Member which separates the *Architrave* from the *Cornice*. It is deriv'd from the Greek *Zophoros*, (*i. e.* Animal-bear-

ing) it being usual for Animals to be represented upon it. The word *Freeze* comes from the Greek, *Phrygion*, *i. e.* an Embroiderer, the *Freezes* being frequently adorn'd with Figures in *Bas-Relief*, somewhat in imitation of Embroidery.

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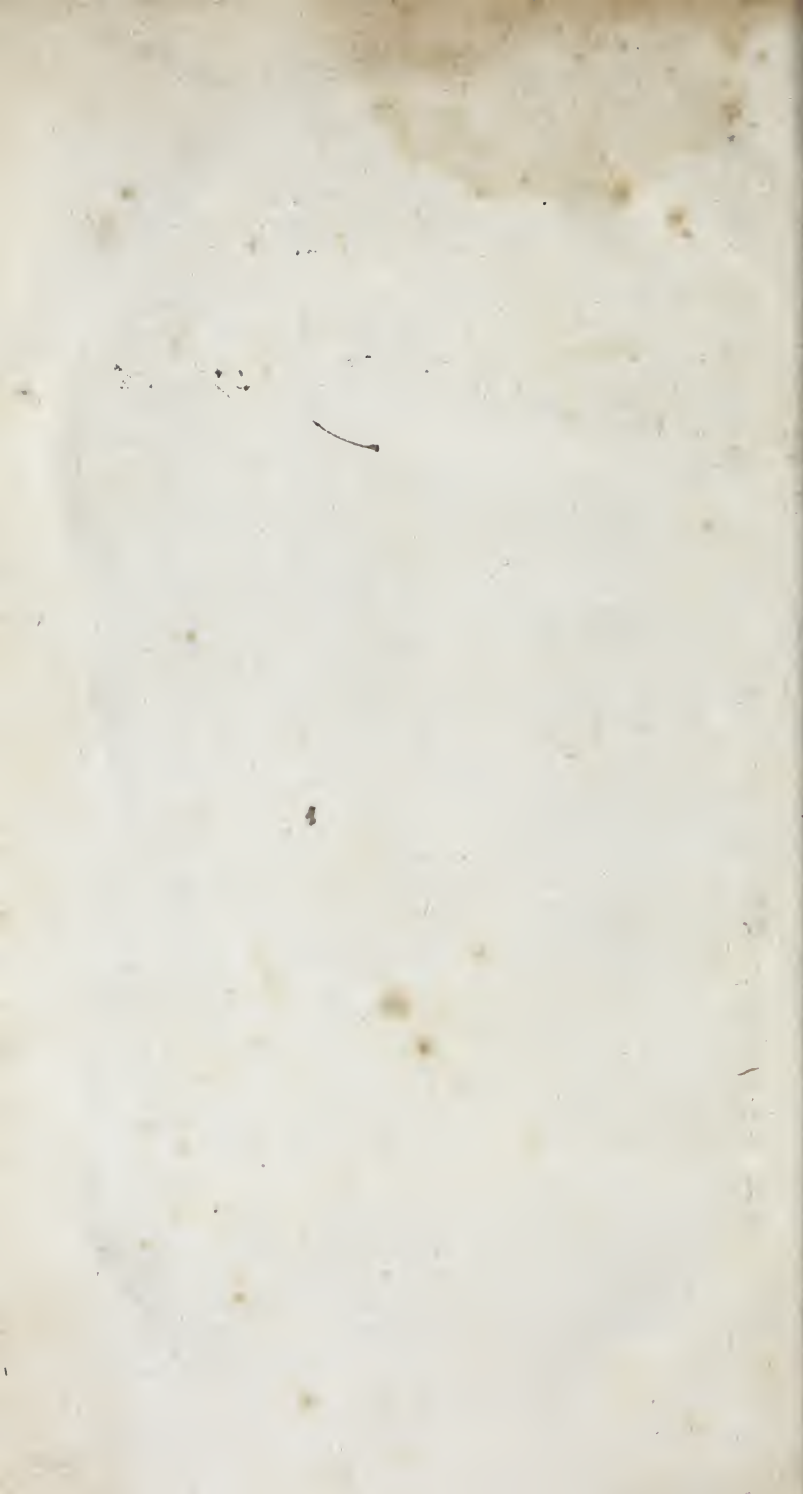
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